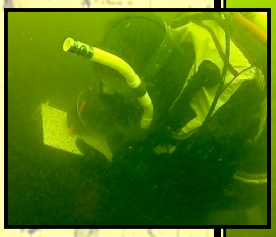
Maritime Heritage Minnesota

Ann Merriman
Christopher Olson

Lake Minnetonka Nautical Archaeology 1 Project Report











Acknowledgments

Maritime Heritage Minnesota (MHM) thanks the People of Minnesota for their support of the Minnesota Historical and Cultural Heritage Grant program, part of the Arts and Cultural Heritage Fund of the Clean Water, Land and Legacy Amendment; without the MHCH Grant MHM received to conduct this project, the work could not have been completed. MHM would also like to acknowledge the Grants Office Staff at the Minnesota Historical Society for their assistance and we thank Scott Anfinson and Bruce Koenen of the Office of the State Archaeologist for their input. MHM also thanks the staff of the Minnesota Historical Society Library for their assistance. MHM also extends thanks to the Hennepin County Water Patrol and specifically Deputy Jake Spies for their technical expertise on two sites, and Department of Natural Resources Conservation Officer Brent Grewe for his assistance with an issue. The Lake Minnetonka Nautical Archaeology 1 Project is the most logistically complicated undertaking MHM has completed based on the need for additional divers, dive boats, and arranging fieldwork schedules. MHM could not have completed this project within a tight budget without the in-kind support of divers Mike Berger, Kelly Nehowig, Ed Nelson, Mark Slick, and MHM trustee/diver Steve Hack. MHM also thanks Ed, Mark, and MHM Chair Michael F. Kramer for the generous use of their boats to dive on the project's wrecks and anomalies. Lastly, MHM thanks our Board of Trustees Mike, Steve, and Deb Handschin for their continual support.

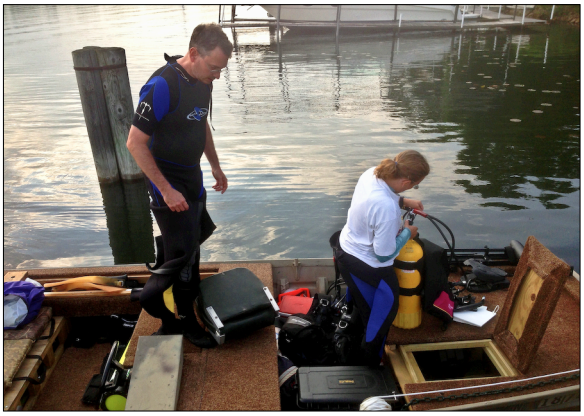
MINNESOTA HISTORICAL &
CULTURAL HERITAGE GRANTS

Introduction

Shipwrecks are not commodities – contrary to popular opinion. Every artifact, be it a shipwreck, solitary anchor, or bottle tells a story. Removing or otherwise disturbing artifacts can obliterate that story. Nautical archaeological sites – wrecks – and maritime archaeological sites – piers and other objects – are finite and significant submerged cultural resources – otherwise known as underwater archaeological sites. Nautical, maritime, underwater, maritime terrestrial – MHM deals with all of these types of sites throughout the State of Minnesota. MHM's mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statues as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).

MHM completed two side and down-imaging sonar surveys of Lake Minnetonka in September-November 2011 and May-June 2012. Prior to MHM's comprehensive surveys, there was one recognized nautical archaeological site on the lake bottom – Streetcar Boat *White Bear* (21-HE-281) – although another five wrecks were known. As a result of the sonar surveys, MHM completed archaeological site forms for the other five wrecks: Streetcar Boats *Como* (21-HE-397) and *Hopkins/Minnetonka* (21-HE-396), sternwheeler *George/Excelsior* (21-HE-399), tug *Hercules* (21-HE-398), and sidewheeler *Minneapolis* (21-HE-403). MHM also completed site forms for three wrecks identified during the surveys: the St. Albans Bay Wreck (21-HE-400), the Wayzata Bay Wreck (21-HE-401), and Wreck 1 (21-HE-404). Additionally, MHM acquired an archaeological site number for the Big Island Steamboat Pier, Amusement Park, and Veteran's Camp (21-HE-402). In October 2012 and from mid-May to early July 2013, MHM and a select group of ethical volunteer divers investigated a prioritized list of anomalies and wreck sites using SCUBA. In addition, the Hennepin County Water Patrol (HCWP) partnered with MHM to visually record two wrecks that served as test subjects for their newly acquired Remotely Operated Vehicle (ROV). This report presents the findings of this underwater fieldwork and the maritime historical research that stemmed from the data collected during the dives. For detailed outlines of the maritime history of Upper and Lower Lake Minnetonka, see MHM's *Lake Minnetonka Survey 1 Report* and *Lake Minnetonka Survey 2 Report*.

In the Field
In St. Albans Bay on Mike Kramer's speed boat
On Ed Nelson's sailboat – Nautical Archaeology under sail power!
Gearing up on Mark Slick's modified duck boat
An ascent from a wreck
(by Mark Slick and MHM).



In the Field
Floating in St. Albans Bay & Crystal Bay
Posing on the ascent
Heading out from Gideon Bay
Under sail on Lower Lake
Getting ready in Wayzata Bay
(by Mark Slick and MHM)

In the Field
In St. Albans Bay, Using GPS in Gideon Bay, Sometimes by sail, sometimes by motor, Unloading gear after diving, The group after diving (by Mark Slick, Mike Kramer, and MHM)

Research Design

The purpose of the Lake Minnetonka Nautical Archaeology 1 Project (LMNA-1) was to determine the nature of specific anomalies and newly-recognized nautical archaeological sites – shipwrecks – located during sonar surveys of Upper and Lower Lake Minnetonka. MHM used sonar data collected during the Lake Minnetonka Survey 1 and 2 Projects (LMS-1, LMS-2), conducted in 2011 and 2012, to identify nautical (watercraft) and underwater (other types of cultural remains) archaeological sites located on the bottom of the lake. MHM prioritized which anomalies – potential nautical or underwater archaeological sites – and wreck sites located during the LMS-1 and 2 surveys that deserved priority attention for further research in Lake Minnetonka. MHM determined the list from an analysis of sites and anomalies that were deemed the most historically and archaeologically significant, that could answer the most questions, and those that may be in danger from looting. The investigated anomalies and sites were: Anomalies 1, 2, 3, 4, 20.1, 21, 21.1, 21.2, 22, 28, 52, 54 (Echo Bay Wreck), 63, 69, 91 (Spring Park Bay Wreck), 102, 103, 106, 118, the St. Albans Bay Wreck, Wayzata Bay Wreck, and Wreck 1. Using data accumulated from the fieldwork as a starting point, MHM conducted research to place known and newly recognized nautical and maritime archaeological sites in their historical contexts and in some cases, established identifications and disposition (sinking) dates. Minnesota Archaeological Site Forms were filed with the Office of the State Archaeologist (OSA) when appropriate and ultimately, all data collected during the LMNA-1 Project will be utilized to nominate Lake Minnetonka as a Historic Shipwreck District.

Methodology

The methodology used to identify and rudimentarily document underwater archaeological anomalies is straightforward but logistically complicated. MHM used the GPS coordinates of a wreck or anomaly, data produced during the LMS-1 and 2 projects, to drop a weighted diver down buoy near the target. Then the dive boat anchored a safe distance away from the buoy and divers geared up for the dive. At any given time there were between two and six divers underwater. If the buoy anchor weight – four pounds of dive weights – landed near and sometimes on the anomaly or wreck, no search for the target was conducted. However, for a variety of reasons, a brief search for the target was conducted until it was located or it was determined that the anomaly was a false sonar return. If a cultural resource was located, the divers photographed and recorded video of the site and then its basic measurements were recorded. The order that MHM investigated the prioritized list of anomalies and wrecks was flexible to accommodate the availability of volunteer divers and boats. MHM also scheduled the fieldwork to coincide with low traffic days and times of day on the lake with the exception of one busy Sunday afternoon.

Results of the Lake Minnetonka Nautical Archaeology 1 Project

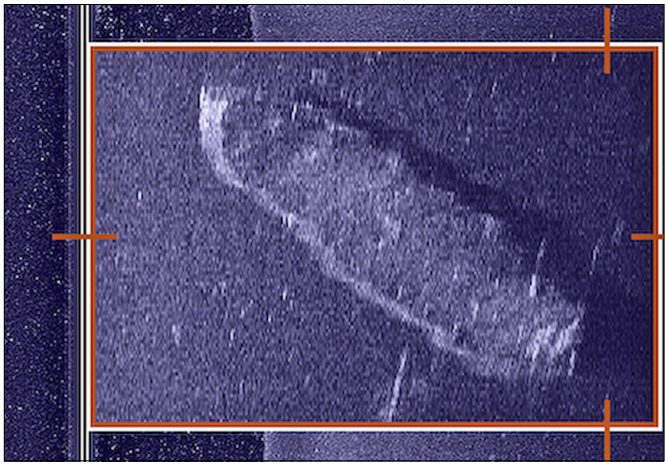
MHM and the volunteers confirmed the existence of ten new wrecks in Lake Minnetonka, two new submerged maritime sites, and gathered new information on the

St. Albans Bay Wreck and the Wayzata Bay Wreck. The data provided to MHM by the HCWP allowed MHM to determine the identification of Wreck 1 and defined the Spring Park Bay Wreck's (Anomaly 91) type, assisting in MHM's dive plan on the wreck. Of the 22 anomalies and sites included in this project, five were determined to be false sonar targets, one was a large piece of a bog that had detached from the lake's shoreline and sank, and in one disappointing case, an anomaly was two lines of rocks.

Wayzata Bay Wreck, 21-HE-401

MHM recorded the first sonar image of the Wayzata Bay Wreck in November 2011 during the LMS-1 Project, acquired her site number in December, and hypothesized that the wreck had a torpedo stern (like a Streetcar Boat, Wayzata boat-builder Royal Moore's design) or was a possible cut-down steamboat. Upon diving on the wreck in May 2013, MHM determined her length is 85 feet, her beam is 18.5 feet, and she is a wooden 'model barge'. A model barge is an un-powered vessel that has two pointed (sharp) ends, making her double-ended. She is sturdily built, with distinct scarfs in her gunwale at different points, has an intact deck, substantial wooden cleats, deck hatches, large H-bitts on both ends, and distinct stem/stern posts. MHM determined that the Wayzata Bay Wreck sank on September 30, 1879: "Monday night's storm was a lively on at Lake Minnetonka. A barge was sunk and a small steamer was capsized near Wayzata" (*The St. Paul Globe* 1879). MHM contends the Wayzata Bay Wreck is the barge that sank during that violent storm, particularly since the completely reviewed sonar footage from 2011 revealed no other barges on the bottom of the bay and her construction is consistent with barges from that era.

This sonar image of the Wayzata Bay Wreck was recorded by MHM during the LMS-1 Project in November 2011.



Monday night's storm was a lively one at Lake Minnetonka. A barge was sunk and a small steamer was capsizod near Wayzata.

MHM contends this brief item is about the Wayzata Bay Wreck (*The St. Paul Globe* 1879).

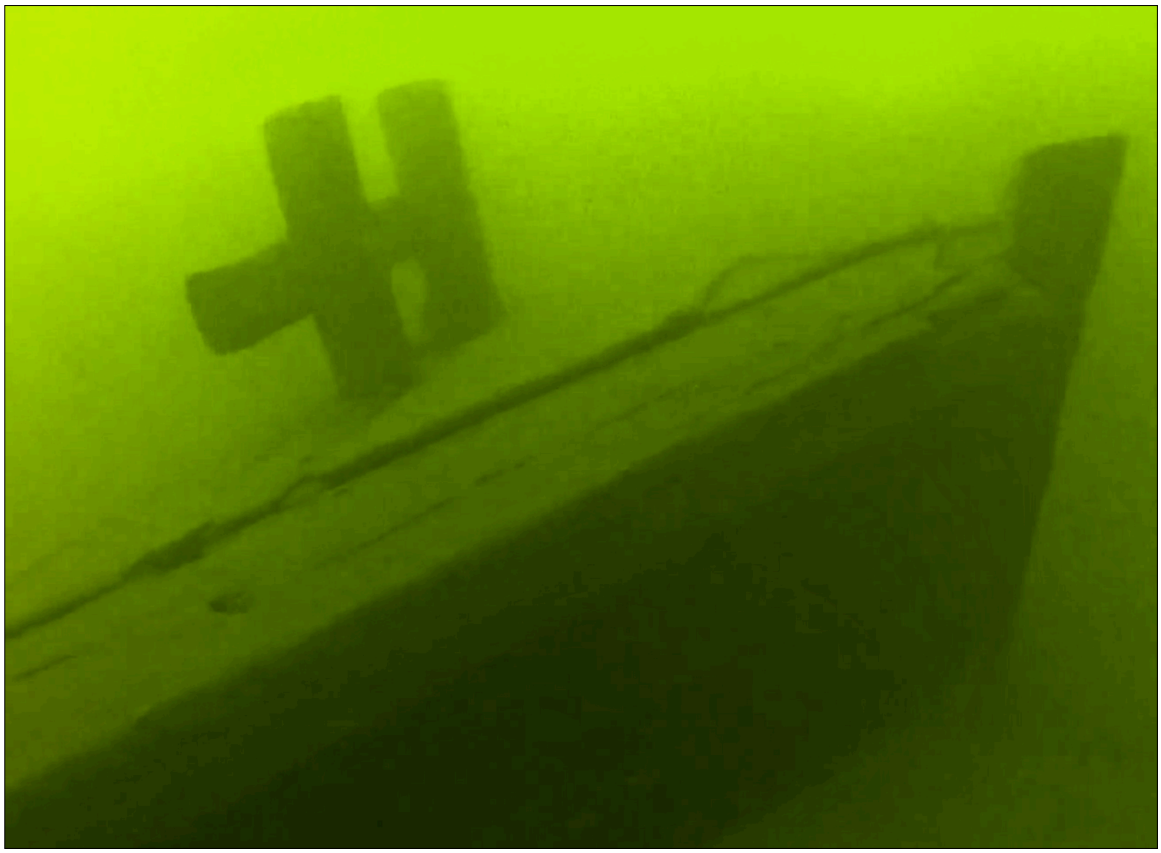
Model barges were characterized as the "pride of the western boatman...these boats excite in a remarkable manner the enthusiasm of the river men". In the early 1880s, model barges were constructed in Pittsburgh and Freedom, PA, Cincinnati, Jeffersonville, IN, and at numerous locations on the Ohio River. These vessels were used on the Ohio and Mississippi Rivers as bulk carriers with cargoes of grain, railroad iron, iron ore, tile, and other commodities. These barges ranged from 100 feet to 238 feet long, 30 to 30.5 feet in the beam, depths of hold between 6 and 9 feet, and had a hogging truss down their centerlines supported by stanchions. The pointed stern was referred to as a 'pinkie' (Hall 1884, 184), but MHM wonders how boatmen would know which end was which.

Model barges along with the steamer *Diamond Jo* in Winona in 1875. The model barges carry deck cargoes, and have hogging chains with stanchion supports evident (HE5.14r75, Minnesota Historical Society, digitized by MHM).

Despite the apparent popularity of model barges – and the photograph above proves they were utilized in Minnesota in 1875 – there are only two other known examples in the American archaeological record, located in 1988 during extreme low water conditions in the Mississippi River in Arkansas. These wrecks are part of the West Memphis Boat Wrecks Site (3CT243), a group of six wrecks and other hull pieces that could not be assigned a particular context. Of these six wrecks, two model barges designated Vessel No. 1 and Vessel No. 5. The archaeologists documenting 3CT243 surmised the two models barges might have been part of the US Army Corps of Engineers (USACE) Dredge Fleet headquartered nearby and their function was to transport stone for rip rap operations and haul heavy machinery. Vessel No. 1 was considered to be "in extraordinary shape" for being in a dynamic river environment. None of Vessel No. 1's deck survived, her gunwale is missing one end's outer hull planking is gone, but her stem/stern posts exist and her bottom is intact (Stewart-Abernathy 2002, 172-174; Saltus and Stewart-Abernathy 2002, 102-118; Stewart-Abernathy and Saltus 2002, 139, 141). Considering that Vessel No. 1 is in extraordinary condition, the Wayzata Bay Wreck is in superlative condition, a state that can be attributed to the cold, fresh, relatively non-dynamic water of Lake Minnetonka.

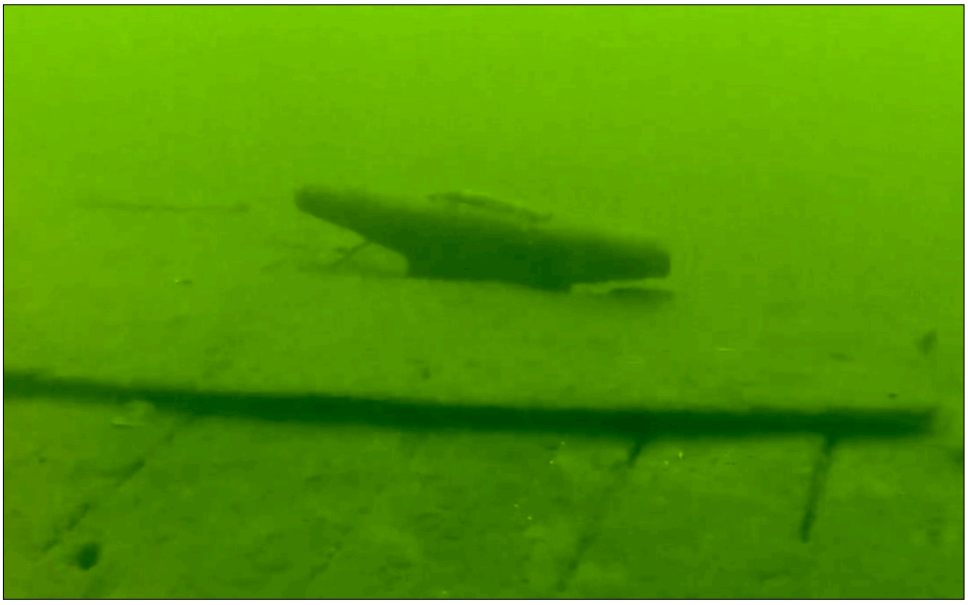
MHM is not entirely surprised that the Wayzata Bay Wreck is a model barge found in a

lake even though this vessel type has only been documented as working on rivers from the mid-1860s to the early 1920s (Saltus and Stewart-Abernathy 2002, 103). The Wayzata Bay Wreck was appropriate for the same type of work on Lake Minnetonka that Vessels No. 1 and 5 performed on the Mississippi River. The wreck may have been part of the barge fleet owned by the fuel company of Hill, Saunders & Acker, constructed in 1876 or earlier. The fuel company specialized in cutting timber from the shores of Upper and Lower Lake Minnetonka, transported the logs on barges to Wayzata, and taken by rail to Minneapolis. The firm also constructed a tug, the *'76*, that may have towed the Wayzata Bay Wreck and her cargo until the tug's conversion to a passenger vessel in 1878 (McGinnis 2010, 1; *Lake Minnetonka Tourist* 1876). MHM surmises that in September 1879, when a major storm sank a barge in Wayzata Bay, the model barge might have been moored at the Hill, Saunders & Acker landing. She broke free and waves overcame her flush gunwales and water filled her hold through her deck hatches. The vessel was not raised because, by late 1879, the Wayzata Bay Wreck may have been redundant as deforestation limited the amount of raw materials available for use as fuel in the Twin Cities. Today, for Nautical Archaeology and Maritime History, the Wayzata Bay Wreck represents a one-of-a-kind nautical archaeological site in Minnesota, one of three model barges in the United States, and the best-preserved wreck of her type known. MHM submitted an archaeological site form update to the OSA in early July 2013.

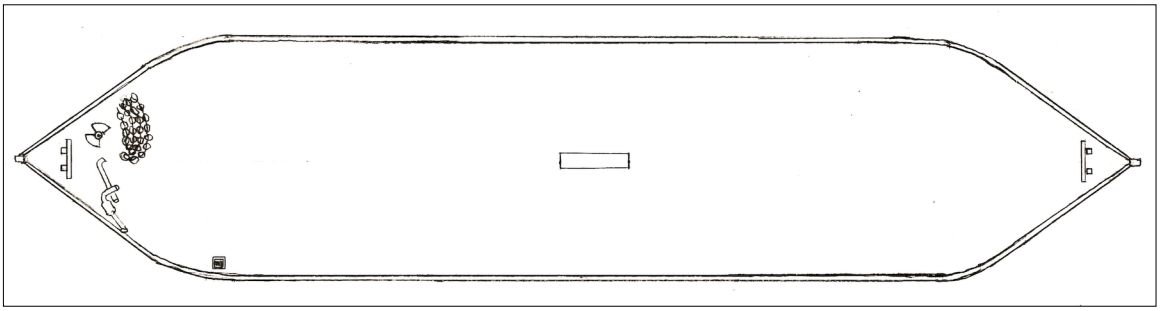


One end of the Wayzata Bay Wreck with the stem/stern post and H-bitt (by Ed Nelson).

The Wayzata Bay Wreck has deck hatches and obvious scarfs in both gunwales (by Ed Nelson).



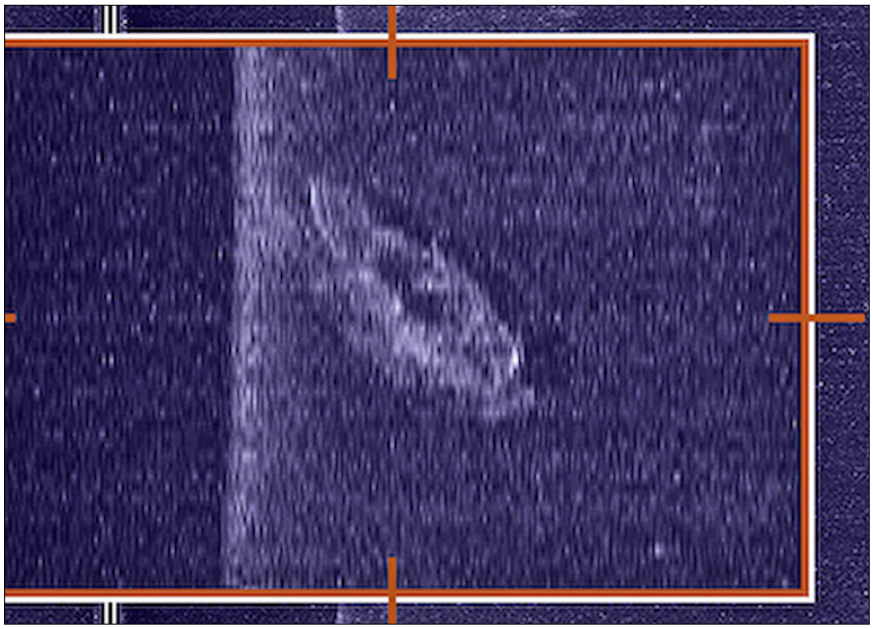
The Wayzata Bay Wreck has large wooden cleats on the port and starboard sides (by Ed Nelson).



MHM's drawing of the Wayzata Bay Wreck. On the west end of the wreck there are a series of metal artifacts placed on the deck: pipes, a length of chain, and a broken propeller.

Tug *Priscilla* (Wreck 1), 21-HE-404

MHM located Wreck 1 in November 2011 during the LMS-1 Project and acquired a site number for the wreck in January 2012. MHM's initial analysis indicated the wreck was 50 feet long with a 20 foot beam and it was determined she might be a steam or gasoline launch constructed in the late 19th or early 20th Century. MHM provided the coordinates of Wreck 1 to the HCWP and the officers tested their new ROV on the Wreck 1 site on May 22, 2013. MHM reviewed the video footage and photographs and from these graphics, it has been determined that Wreck 1 is the tug *Priscilla*, measuring 48 feet long and 14 feet in the beam. The diagnostic characteristics that indicate Wreck 1 is *Priscilla* are her bow and stern design and construction, fore and aft deck configurations, the sturdy bollard placement both fore and aft, the gunwale and twin rubrail design, and the stempost construction. Interestingly, one of the HCWP images shows there is a Danforth anchor wedged into the wreck's rubrail, probably accidentally stuck there from a fishing boat.



This sonar image of *Priscilla* was recorded by MHM during the LMS-1 Project in November 2011.

Priscilla, a steam propeller, was constructed in 1906 and owned by Captain John R. Johnson and his Minnetonka Dredging Company. A 1906 image of *Priscilla* assisting the dredge *Napoleon* and a barge referred to their work of clearing reefs at Cedar Point in Wayzata Bay and Bickford's Point in Excelsior Bay. By the mid-1920s, *Priscilla* was converted to internal combustion and continued in service for the dredging company until approximately 1952, as indicated by a photograph (McGinnis 2010, 215; *Minneapolis Journal* 1906). MHM submitted an archaeological site form update to the OSA in July 2013.

This image of the tug *Priscilla* was taken while she was still steam-powered, as indicated by the design of her smokestack (Reserve Album 111, #53, Minnesota Historical Society, digitized by MHM).

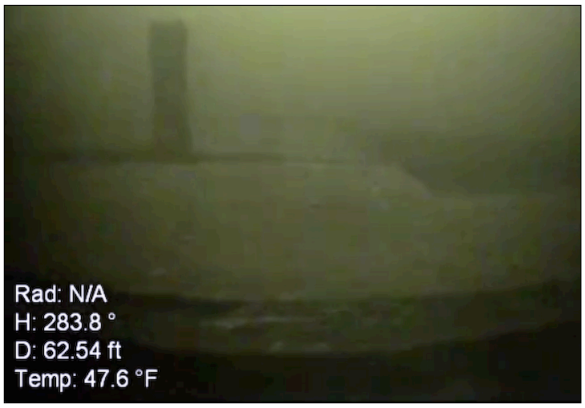
Priscilla, powered by gasoline or diesel, towing a Minnetonka Dredging Company dredge in the 1920s (2006-2-W1-158C, Western Hennepin Pioneer Association).

Priscilla assisting a pile driver during dock construction in Deephaven around 1938 (2006-2-W1-6B, Western Hennepin Pioneer Association).

Images of *Priscilla* taken by the HCWP's ROV – note the 'claw' (by Hennepin County Water Patrol).

Five images of the wreck's bow

A Danforth anchor snagged and damaged *Priscilla's* rubrail.

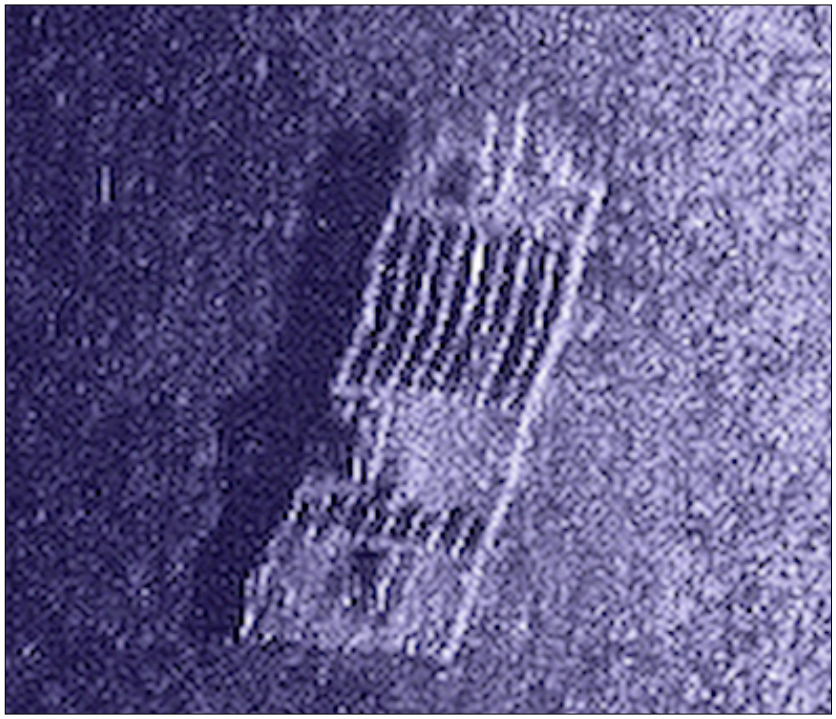


An amidships view with the engine well and a stern view, both with the bollard evident.

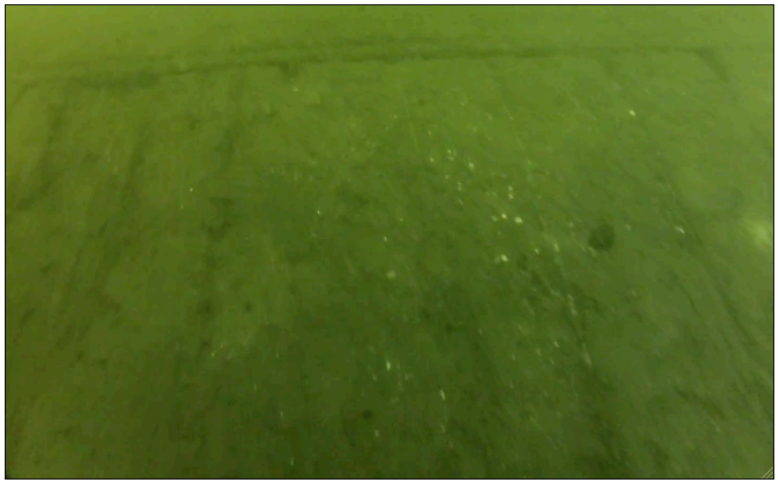
St. Albans Bay Wreck, 21-HE-400

The St. Albans Bay Wreck is a wooden dredge boat of substantial construction and size located by MHM during the LMS-1 Project in September 2011. MHM had estimated her size to be 60 feet long and 23 feet in the beam, but after diving on the site in May and June 2013, her size is 70 feet long, 26 feet in the beam, and her depth of hold is 5 feet. There is an extendable leg, known as a spud, located at the stern of the wreck. This wreck may be *Dredge No. 2,* also known as *S. J. Barlow*, a vessel constructed in Wayzata in 1888 and owned by Hennepin County, used to maintain the lake's shores and dig channels. *Dredge No. 2* burned and sank in 1896 near Solberg's Point, and while her machinery was salvaged, her hull may have remained on the bottom of the lake. Another candidate or the St. Albans Bay Wreck may be one of Captain John R. Johnson's dredges built for his Lake Minnetonka Dredging Company located at nearby Solberg Point. He owned several dredges, including two boats named *Rambler* constructed in 1899 and 1903 and *Napoleon* by 1906. Johnson's last known dredge was built over the winter of 1925-1926 and was described as "26 feet wide, exclusive of spuds, and 70 feet in length. It will have a freeboard of five feet" (*Excelsior Cottager* 1896; McGinnis 2010, 57-59, 219; *Minneapolis Journal* 1906; *Minneapolis* Times 1896; Minnetonka *Record* 1925). The introduction of the new dredge in 1926 may have prompted the company to scuttle the old *Napoleon* in St. Albans Bay. However, dredging was still going on in Excelsior Bay around the new amusement park, so the old boat may have been abandoned once that work was completed. Conversely, a more likely theory is that the 1926 dredge is the St. Albans Bay Wreck and the newspaper misused the term 'freeboard'. MHM submitted an archaeological site form update to the OSA in July 2013.

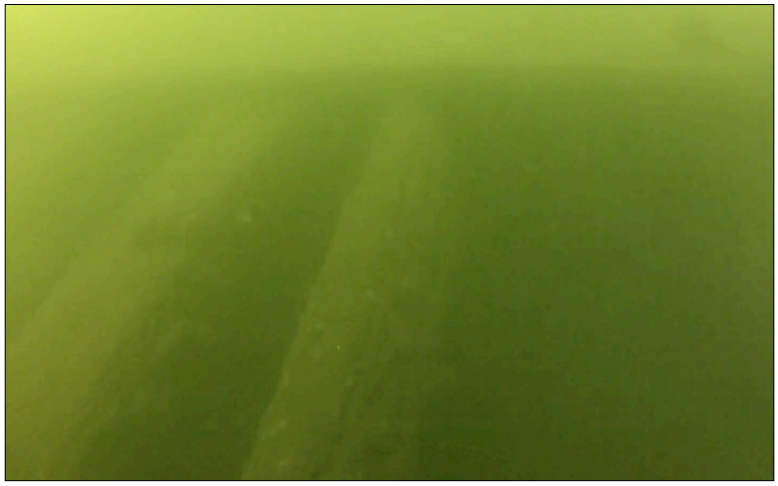
This sonar image of the St. Albans Bay Wreck was recorded by MHM during the LMS-1 Project in September 2011.



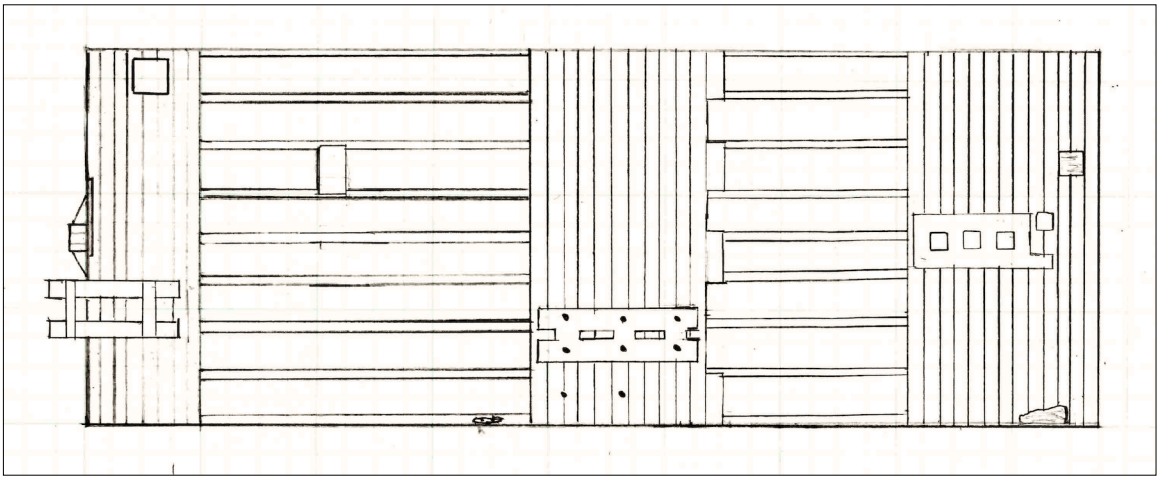
Intact decking of the St. Albans Bay Wreck (by Kelly Nehowig).



Longitudinal deck beams of the St. Albans Bay Wreck (by Kelly Nehowig).



MHM volunteer Ed Nelson shooting video on the St. Albans Bay Wreck (by Kelly Nehowig).

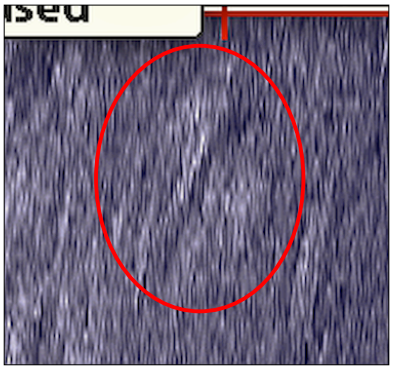


MHM's drawing of the St. Albans Bay Wreck. The stern is to the left, where the center spud is located.

Wayzata Bay Rowboat Wreck, 21-HE-417 (Anomaly 21.1)

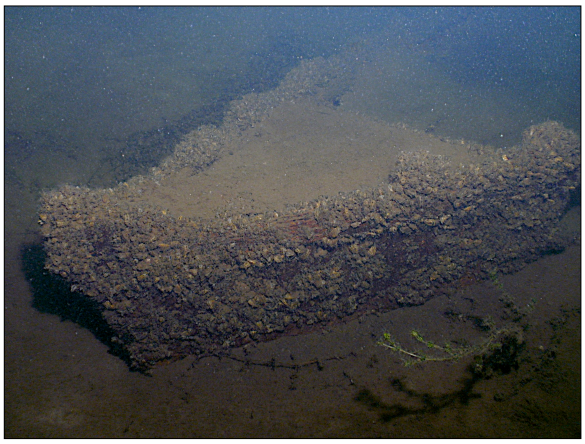
During the LMS-1 Project in November 2011, MHM recorded the sonar signature of Anomaly 21.1 but did not recognize it since the image is indistinct. MHM volunteer Kelly Nehowig informed MHM of Anomaly 21.1's existence when he happened upon a small, mostly buried rowboat wreck while investigating MHM's Anomaly 21 (see below) in August 2012. An attempt to relocate the wreck in October 2012 was unsuccessful. A systematic search of the specific area where the wreck was suspected to be - using SCUBA - located the wreck in mid-June 2013. MHM volunteer Mark Slick spotted the wreck during the search and dropped a float on her location. MHM took a direct GPS reading from the float on the surface and with these numbers, located the wreck's acoustical signature in the recorded sonar data from the survey. MHM would have missed this wreck entirely if Nehowig had not located her; the sonar signature is that unclear without magnification.

This indistinct sonar image of the Wayzata Bay Rowboat Wreck was recorded by MHM during the LMS-1 Project in November 2011. This image is enlarged from the original sonar recording.

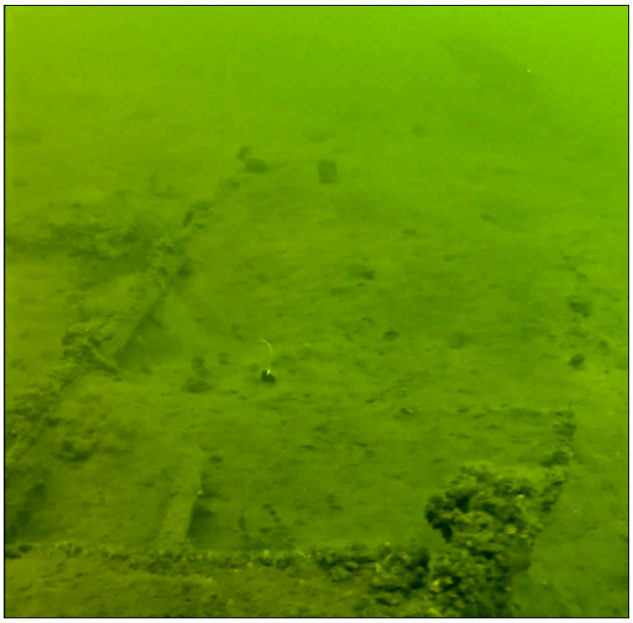


The Wayzata Bay Rowboat Wreck is 16 feet long, 3.5 feet in the beam, the gunwales and stern are degraded, and the wreck is covered with zebra mussels. There are seats (thwarts) buried in a thin layer of silt and at least one metal support for a seat is extant. The wreck has a seat back with thin supports that originally attached to both stern gunwales, a trait for the Moore Boat Works 'Special Finish, High Grade Family Row

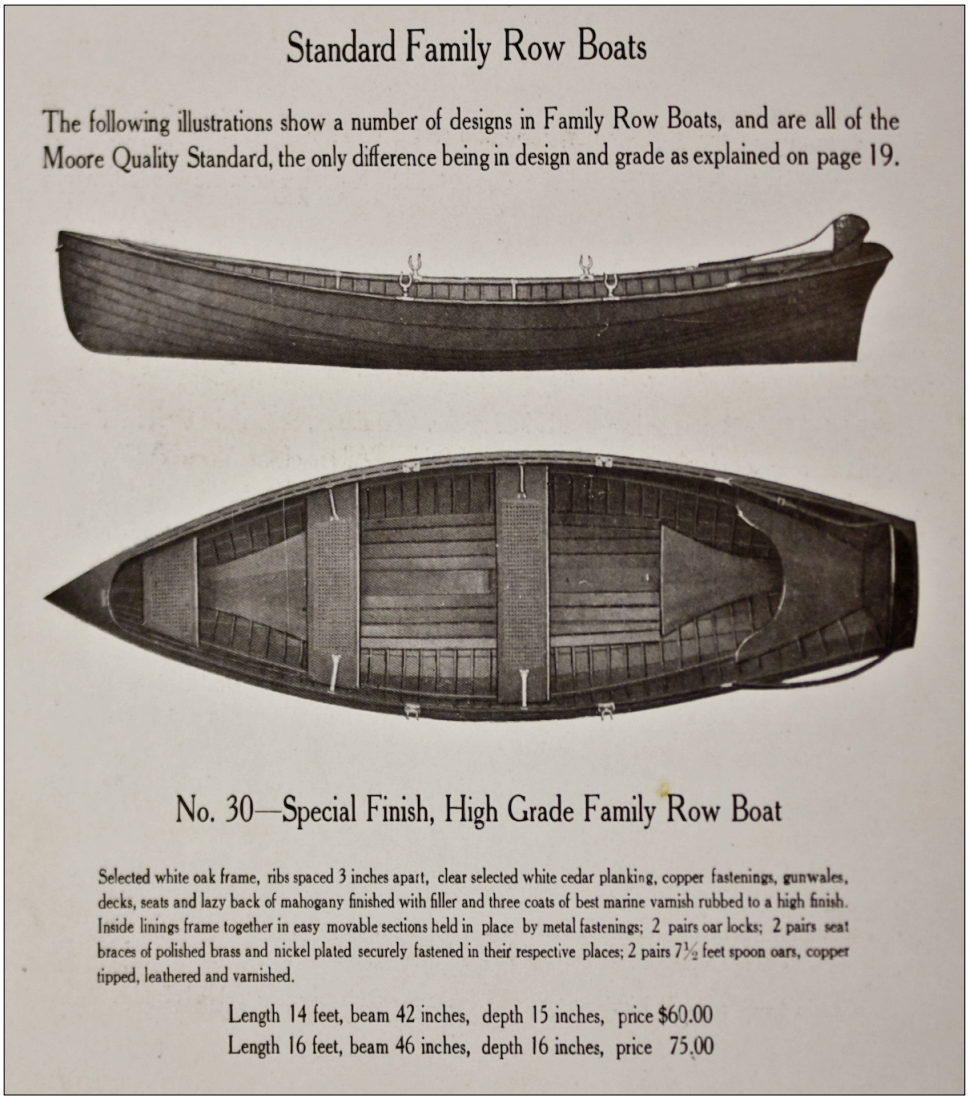
Boat', model No. 30 in their 1908 catalog (Moore Boat Works 1908, 20). The main difference between the Wayzata Bay Rowboat Wreck and No. 30 is the bow design. The wreck has a simple triangular piece that acts as the foredeck and No. 30 has a smooth and elegant design that incorporates the foredeck with the gunwales in a rounded curve. MHM contends the Wayzata Bay Rowboat Wreck is an earlier version of No. 30 and would be slightly more easily constructed. The amount of degradation to the wreck, particularly both gunwales and the stern, and the amount of silt build-up indicates the wreck has been on the bottom of the lake for a substantial amount of time. Since the boat was probably constructed several years before the 1908 catalog was published and the average lifespan of a small wooden boat was not long, a wrecking date of 1900-1910 is reasonable. Further, while the Moore Boat Works may have constructed the boat, at this point it cannot be proven – and there were several boat yards on Lake Minnetonka capable of building such a vessel. MHM submitted an archaeological site form for the Wayzata Bay Rowboat Wreck to the OSA in June 2013 and acquired her number at that time.



Top: The bow and stern of the Wayzata Bay Rowboat Wreck (by Mark Slick).



Right: The Wayzata Bay Rowboat Wreck looking from the bow toward the stern. Both the starboard and port gunwales are degraded, as is the stern (by Kelly Nehowig).



Standard Family Row Boats

The following illustrations show a number of designs in Family Row Boats, and are all of the Moore Quality Standard, the only difference being in design and grade as explained on page 19.

No. 30—Special Finish, High Grade Family Row Boat

Selected white oak frame, ribs spaced 3 inches apart, clear selected white cedar planking, copper fastenings, gunwales, decks, seats and lazy back of mahogany finished with filler and three coats of best marine varnish rubbed to a high finish. Inside linings frame together in easy movable sections held in place by metal fastenings; 2 pairs oar locks; 2 pairs seat braces of polished brass and nickel plated securely fastened in their respective places; 2 pairs 7½ feet spoon oars, copper tipped, leathered and varnished.

Length 14 feet, beam 42 inches, depth 15 inches, price $60.00
Length 16 feet, beam 46 inches, depth 16 inches, price 75.00

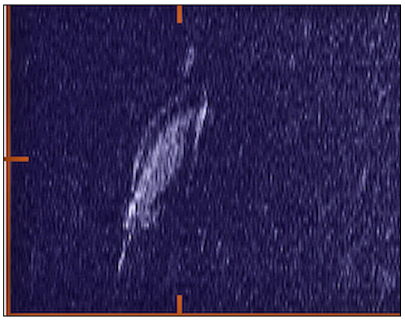
The Wayzata Bay Rowboat Wreck is very similar to No. 30 above, designed and constructed by Moore Boat Works of Wayzata (Moore Boat Works 1908, 20).

Gideon Bay Wreck, 21-HE-415 (Anomaly 63)

Anomaly 63 was recorded by MHM in September 2011 during the LMS-1 Project. MHM surmised that the anomaly was a relatively modern sailboat due to the apparent presence of a railing around what appeared to be the gunwale of a wreck. In May 2013 MHM dove on Anomaly 63 and determined she is a wooden rowboat with damaged port and starboard gunwales with one seat – thwart – extant. The starboard side is mostly buried in silt. The wreck is 16 feet long, 4.5 feet wide, and she is profusely covered in zebra mussels above the silt line. She may have been built by the Moore Boat Works prior to 1912 or the Ramaley Boat Works between 1912-1920. Various forms of rowboats were constructed for decades by a variety of local boat-builders for individual families, fishermen, and as parts of rowboat fleets owned by hotels and resorts. The wreck probably sank prior to 1920 as determined by her construction and how deeply

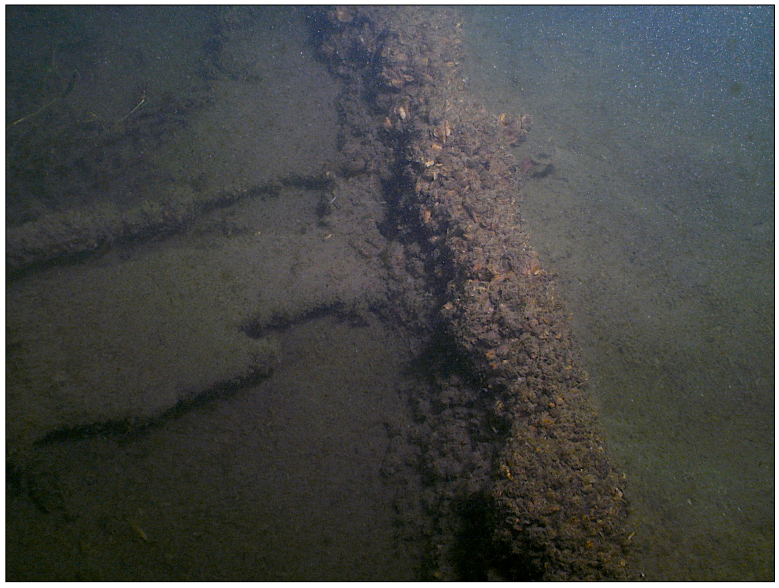
buried she is under the silt. With complete documentation and future removal of zebra mussels her exact type may be deduced. MHM's mistaken idea that the Gideon Bay Wreck was a sailboat with a railing can be explained by the slight acoustical shadow cast by the wreck's side on the inside of her hull combined with the probability that MHM's survey boat was rocked by a wave. MHM submitted an archaeological site form for the wreck to the OSA in late May 2013 and acquired her number in early June.

This sonar image of the Gideon Bay Wreck was recorded by MHM during the LMS-1 Project in September 2011.

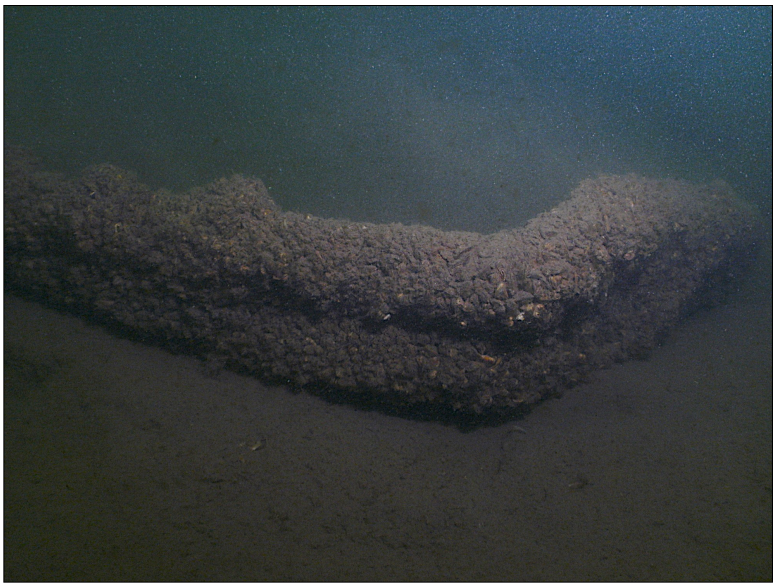


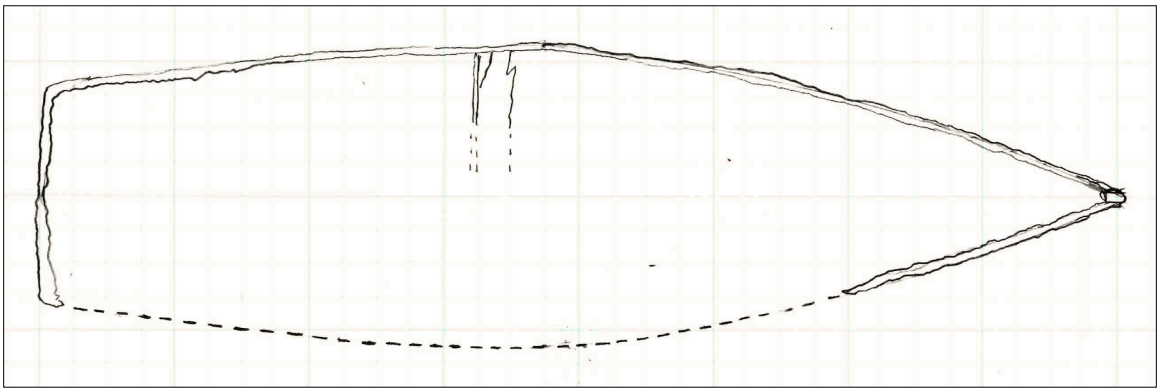
The bow of the Gideon Bay Wreck covered in zebra mussels (by Mark Slick).

The wreck's zebra mussel-covered port side gunwale and one extant seat – thwart – that is visible. Since the seat is covered in silt the zebra mussels have not attached to it yet (by Mark Slick)..



The port side aft quarter and the stern covered in zebra mussels (by Mark Slick).





MHM's drawing of the Gideon Bay Wreck.

Capsized Wooden Boat Wreck, 21-HE-418 (Anomaly 28)

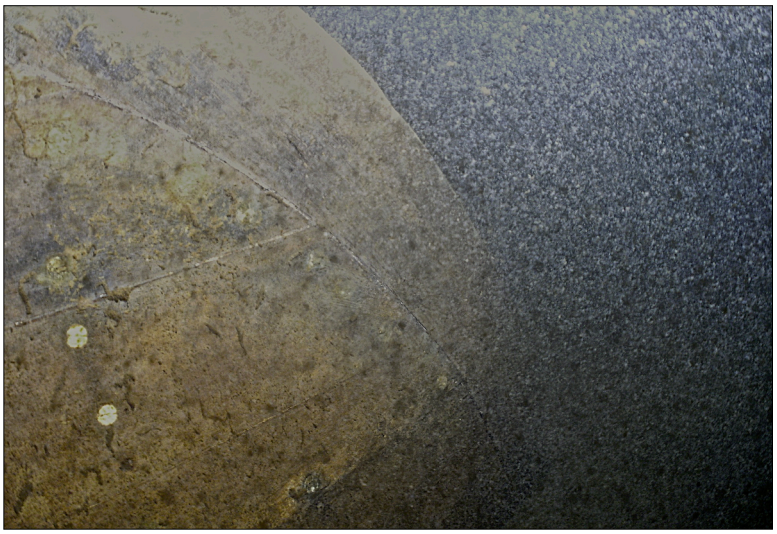
MHM recorded an image of Anomaly 28 during the LMS-1 Project in November 2011 and hypothesized it was a capsized – overturned – approximately 20-foot long boat with a keel evident. MHM dove on Anomaly 28 in June and early July 2013, confirming the site is a capsized wooden boat partially buried in lake silt. The wreck is approximately 28 feet long (determined by probing), has a hard chine, a substantial forward keel that disappears into a 4 foot-wide nearly flat bottom at amidships and aft. At this point the keel resembles a ridge and not a traditional-looking keel that drops below the hull of a boat. MHM cannot be certain as to the wreck's beam, but it is probably around 5-6 feet. MHM has determined the wreck was not a sailing vessel – she is too large, too heavy, her flat bottom combined with the deep keel at the bow would make her sluggish, and she has no fin keel. Therefore, she was probably powered by gasoline or diesel and less likely, steam or naphtha. The starboard side bottom of the wreck has surviving black paint and on the port side bottom white paint survives. However, most of the wreck's paint has degraded above the silt line, exposing the vessel's wood screw

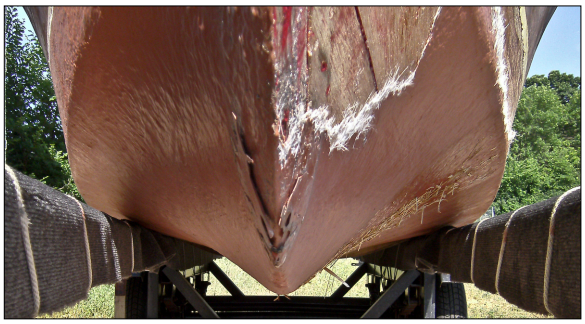
pattern. During the probing to locate the stern – whose shape is still undetermined – a possible hole in the hull's bottom was located that may explain why the boat did not right herself during the wrecking process. The vessel's sturdy, heavy wood construction and the use of slotted wood screws that are evident throughout the hull's bottom indicates she was built prior to the common use of Phillips head screws and certainly their wide-spread use by 1939 (Rybczynski 2000, 83-84).

This sonar image of the Capsized Wooden Boat Wreck was recorded by MHM during the LMS-1 Project in November 2011.

The forward keel of the Capsized Wooden Boat Wreck at the bow. On the right side of the photo – the starboard side of the wreck – the hard chine and the side of the boat leading into the silt can be seen (by Mark Slick).

The port side bow of the Capsized Wooden Boat Wreck. This close-up clearly shows the slot headed wood screws and the substantial keel. This close-up also shows how well-constructed the boat is – the work of a skilled boat-builder (by Mark Slick).

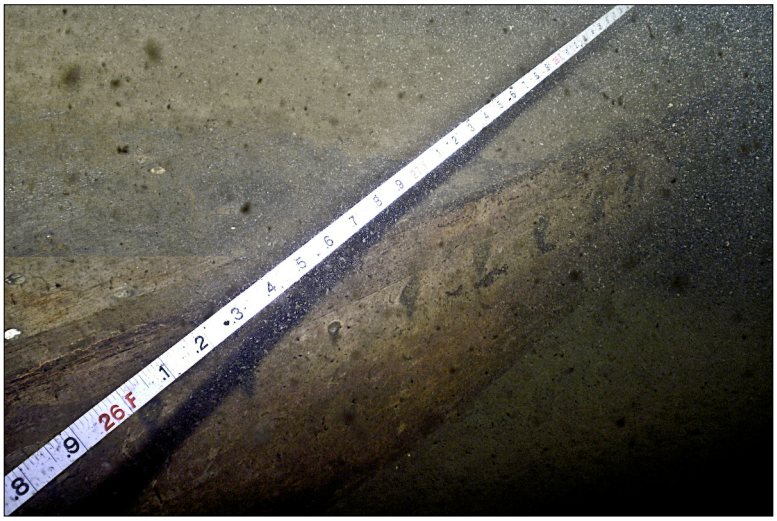




MHM found this Chris-Craft under-going restoration at antique boat-restorer Tom Sweeney's shop. The deep bow keel of the Capsized Wooden Boat Wreck is the same design as this Chris-Craft's bow, shown here. A previous owner covered this wonderful wooden boat's bottom in a layer of fiberglass that is being removed (by MHM).

This view, looking forward from the stern, of the under-restoration Chris-Craft's bottom shows how clearly the keel becomes a small ridge – this is the same design as the Capsized Wooden Boat Wreck. Note the propeller in the right lower corner of the photo and the propeller shaft leaving the hull and connecting to the propeller (by MHM).

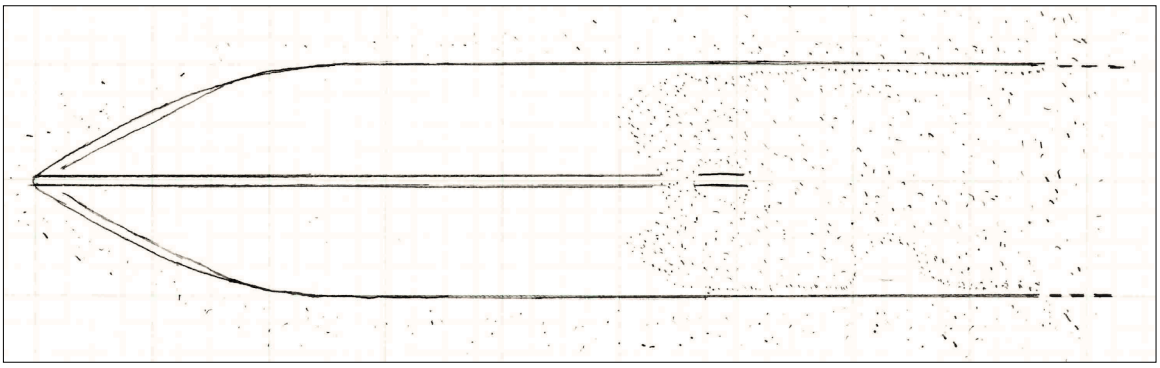
The Capsized Wooden Boat Wreck's hard chine – black paint is seen on the wreck's bottom - and the nearly straight up and down side is clearly seen goinng into the silt (by Mark Slick).



The hard chine of the under-resstoration Chris-Craft is clear here (by MHM).

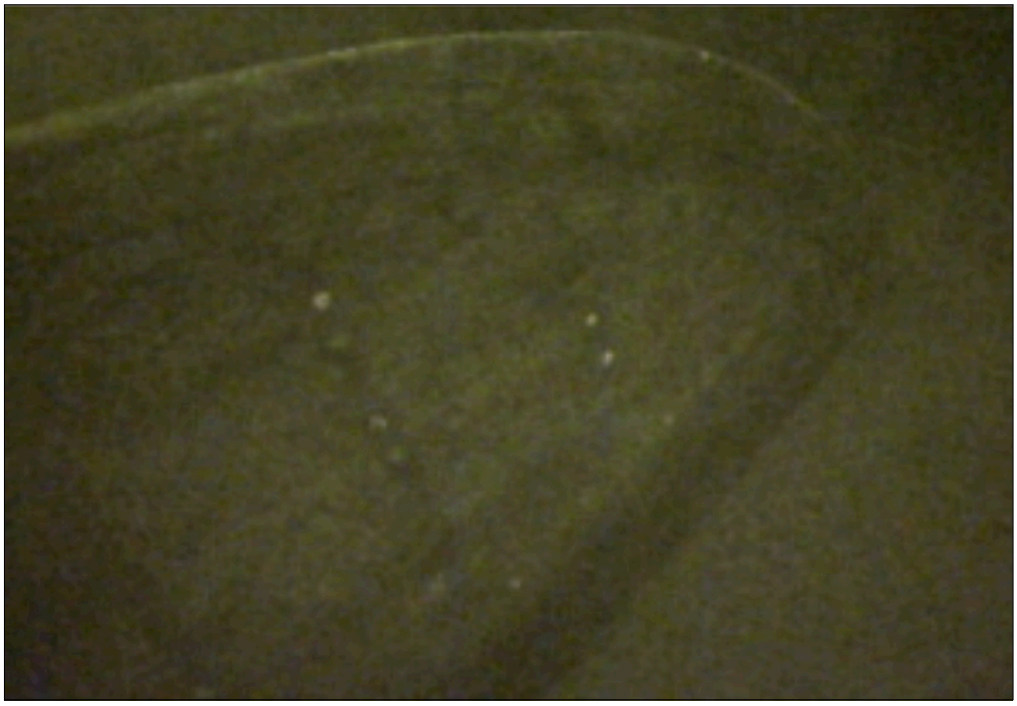
At the stern the wreck is buried under at least 12 inches of silt and from amidships forward, is exposed about 24 inches above the lake bottom with the gunwale lying probably another 12 inches or more below the surface – through probing, MHM estimates the depth of hold to be 3 feet. It also must be taken into consideration that there may be some type of superstructure such as a cabin or canopy attached to the boat when she sank, in addition to an engine, seats, benches and the like. In order to estimate a sinking date for the wreck MHM considered the silt build-up inside and around the Streetcar Boat *White Bear*, sunk in 1926, and our knowledge of the *Minnehaha*. The hull of the *White Bear* is buried to within six inches of her gunwale in the lake silt and at her bow there is 4 feet of hull below the silt. Given that the Capsized Wooden Boat Wreck is 40% of the size of the 70-foot *White Bear*, considering how much of her hull is still exposed, taking into account the disappearance of most of the wreck's paint on the exposed surfaces, and the presence of slot headed wood screws, MHM postulates the wreck was constructed in the 1910s or early 1920s and sank by 1930. The boat is probably not a Chris-Craft since that company, prior to the introduction of Phillips head wood screws, used Frearson wood screws in their work, although their earliest boats may have had slot head screws. Further, Chris-Craft was founded in 1922 and did not construct vessels of this size until 1929 (Conrad 2002, 65-66; Tom Sweeney, personal communication July 9, 2013).

MHM also suggests the Capsized Wooden Boat Wreck may be a Hacker-Craft. John Hacker designed and built large motorboats as early as 1903 and founded Hacker Boat Company in 1908. Hacker designed and constructed fast motorboats throughout the 1910s and in the early 1920s, his stock boats were sold widely by dealerships (Barry 2009, 7-30). Another theory that requires mention is that the Capsized Wooden Boat Wreck a locally built speedboat constructed by the Moore Boat Works before 1912 or Ramaley Boat Works from 1913 onwards. Or, if the wreck is a Ramaley boat, she could have been constructed on White Bear Lake and transported to Lake Minnetonka prior to Ramaley's buy-out of Moore after the 1912 season. However, the "Moore 'Quality Speed Boat" of 1912 was not produced in a 28-foot model and the metal skeg dropped too far below the bottom of the hull; if the Capsized Wooden Boat Wreck is a Moore boat, she would have to be an earlier model not yet found in literature (Moore Boat Works 1912, 11). MHM completed an OSA archaeological site form for the Capsized Wooden Boat Wreck in July 2013.



MHM's drawing of the Capsized Wooden Boat Wreck.

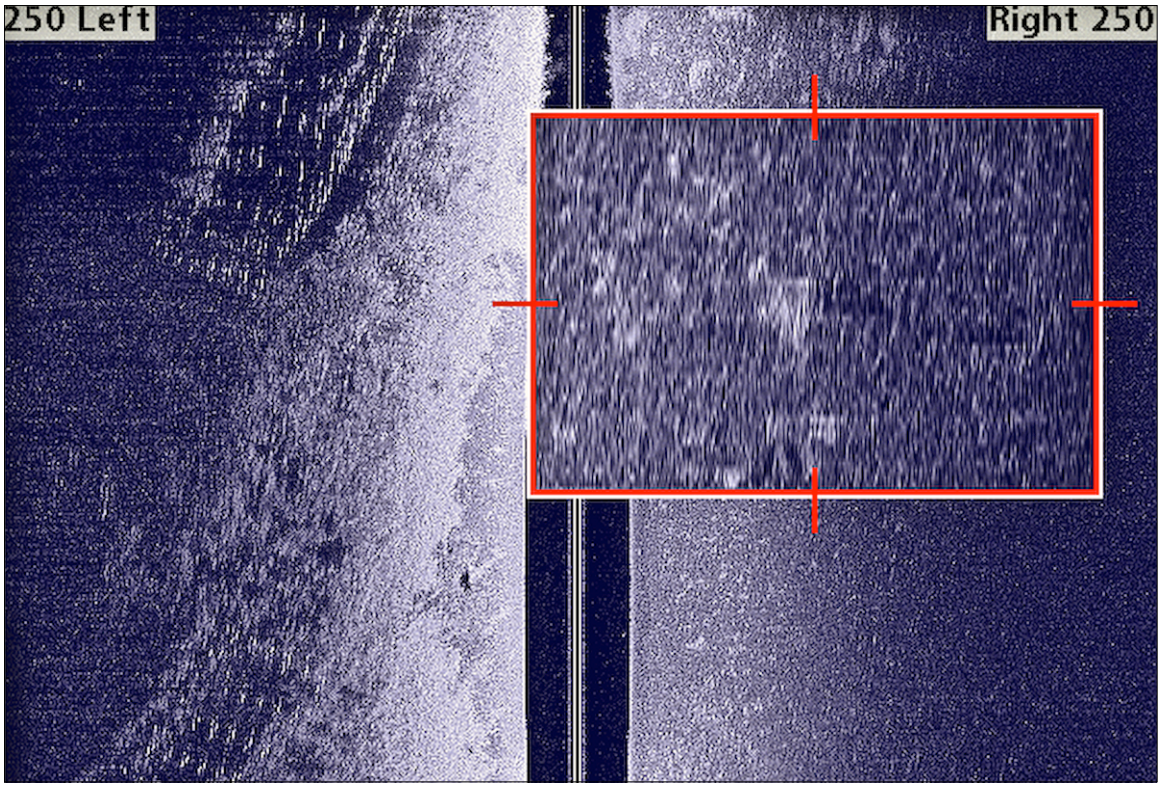
The keel amidships, just before it is completely buried in silt. It is not nearly as pronounced as at the heavy bow (by Mark Slick)



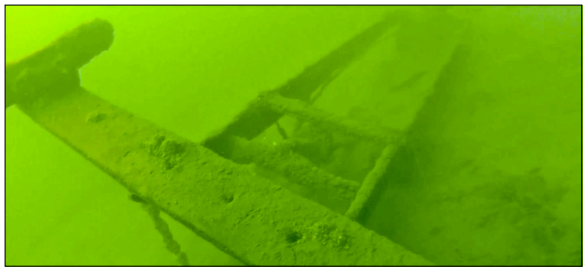
The port side bottom of the wreck where the slot head wood screw framing pattern is clear as is the substantial keel (by Mark Slick).

Wayzata Bay Motorized Ice Boat Wreck, 21-HE-416 (Anomaly 21.2)

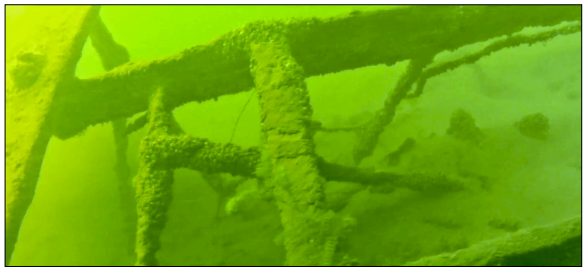
During the LMS-1 Project, MHM recorded the sonar image of Anomaly 21.2 but did not recognize it since the image is small and indistinct. Informants have told MHM that there was a 'trailer' near Anomaly 21 (see below). In October 2012, as part of this project, MHM's Olson and a group of volunteers examined Anomaly 21 and searched the area east of that site, locating the 'trailer'. Olson recognized the 'trailer' for what she is – a motorized ice boat. In June 2013 MHM dove on the site again, this time recording her exact location with GPS and then pinpointing her location in the LMS-1 Project's sonar data. The Wayzata Bay Motorized Ice Boat Wreck is approximately 9.5 feet long and 7 feet wide. The wreck is tipped over, with two runners – the port and aft runners - above the lake bottom in the water column and the third – the starboard runner – is slightly buried in silt. Parts of the wreck are covered in zebra mussels. MHM has determined that the ice boat is motorized due to the steering column visible on the underside and the wide base where a 'cockpit' may have been attached, and the length of the vessel. Sail-powered ice boats are long and light weight while the Wayzata Bay Motorized Ice Boat Wreck is stubby and wide for her length.



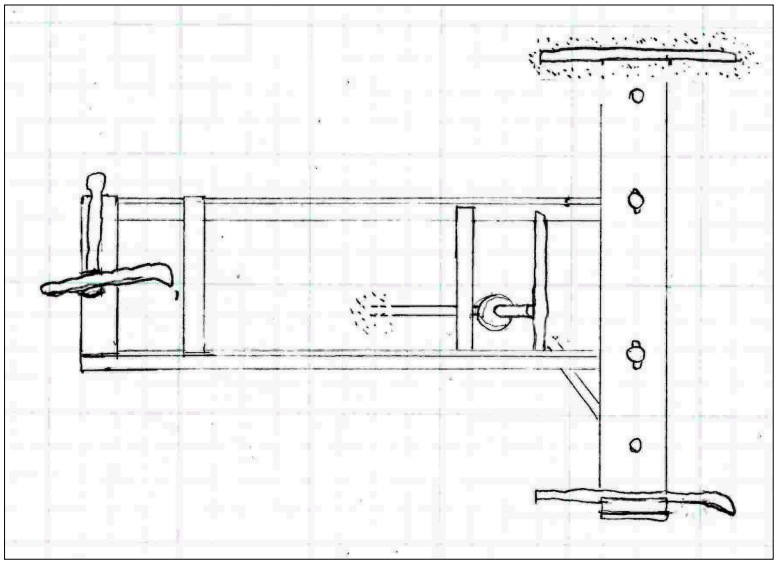
This sonar image of the Wayzata Bay Motorized Ice Boat Wreck was recorded by MHM during the LMS-1 Project in November 2011. The anomalies on the left side of the sonar image are two large docks.



Four views of the Wayzata Bay Motorized Ice Boat Wreck, covered in zebra mussels (by Kelly Nehowig).

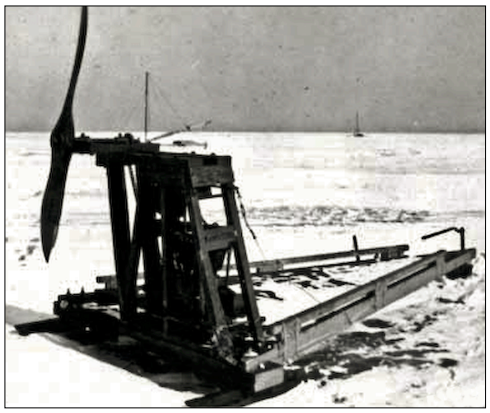


MHM's drawing of the Wayzata Bay Motorized Boat Wreck.



Information on motorized ice boats is scant, but apparently they were first constructed in New York beginning in 1911. In Minnesota, Charles Lindbergh and two of his friends constructed motorized ice boats using motorcycle engines and raced them on Lake Mendota in 1921-1922 (Davis 1959, 73-74). In the 1930s, the Mead Ice Yacht Company of Chicago was marketing a 'motor sled' – or Mead Ice Yacht – for $38.50, exclusive of motor, propeller, and countershaft. One on special display at the Harley Davidson Museum, the 'Cyclone Motor-Sled' *Pop's Trolley* had a 1925 V-Twin Harley Davidson

motor. Builders of this kit removed the motor from their motorcycle during the winter and put it in their ice boat (www.hemmings.com; www.motorcycles.about.com). The Wayzata Bay Motorized Ice Boat Wreck is similar in construction to *Pop's Trolley* and may be a Mead Kit Motor Sled. MHM surmises the wreck sank prior to 1940 because the motor ice boat trend ended due to the speed traveled and the danger involved not only to the motorboatmen, but others on the lake. MHM submitted an archaeological site form for the Wayzata Bay Motorized Ice Boat Wreck to the OSA in June 2013 and acquired her number at that time.



Charles Lindbergh's 1922 motorized ice boat (Reserve Album 122, #312, Minnesota Historical Society, digitized by MHM).

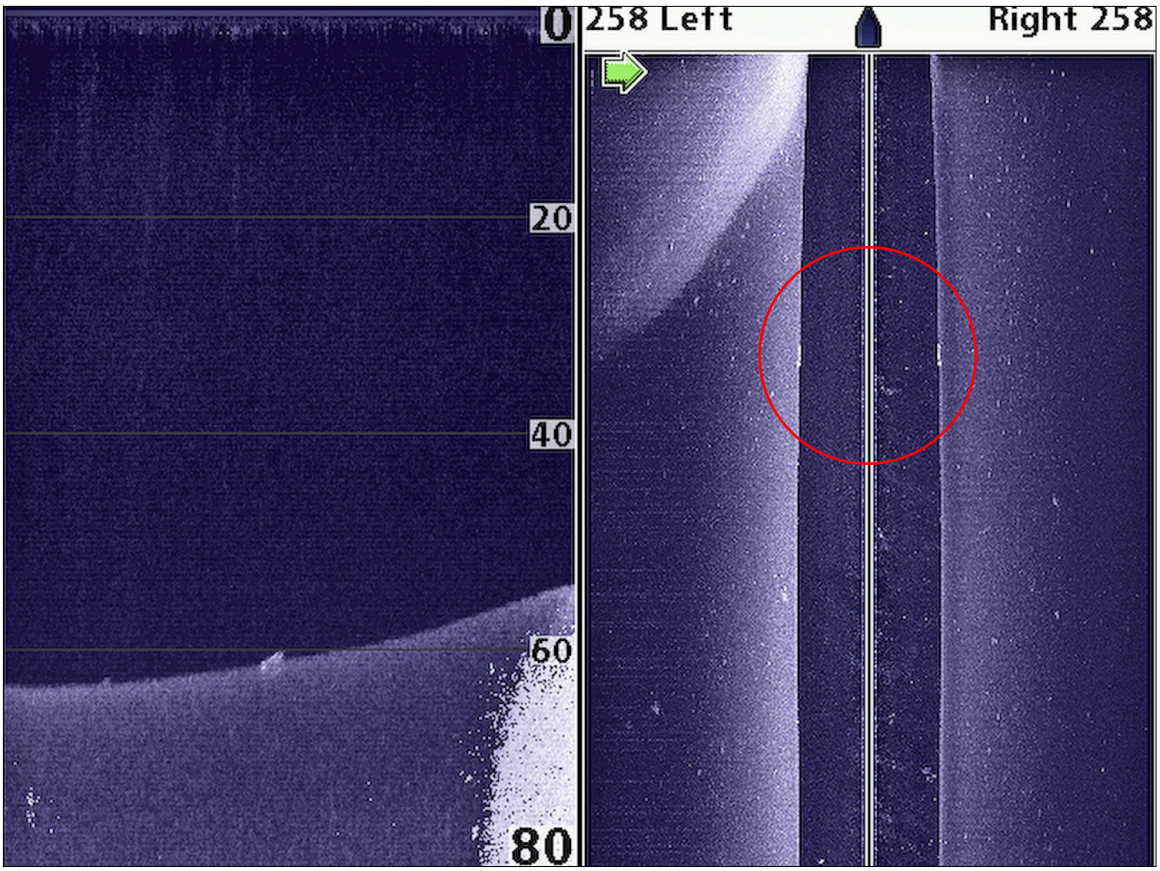
Pop's Trolley, a Mead Kit Motor Sled (Harley Davidson Archives).

A local motorized ice boat constructed by James Hoiby of Minneapolis around 1930 (GV3.74p2, Minnesota Historical Society, digitized by MHM).

Chris-Craft Sportsman Wreck (Anomaly 52)

MHM recorded a sonar image of Anomaly 52 as part of the LMS-1 Project in November 2011. The survey boat passed directly over the site so the side image was 'cut in half',

but the down image indicated a substantial object of undetermined size protruding off the bottom of the lake. MHM's initial hypothesis was that the anomaly was the *Saucy Kate*, a steamer owned by Captain John R. Johnson that burned at nearby Solberg's Point in September 1899. At that time *Saucy Kate* was the oldest steamer on the lake. While burning, she was towed to deeper water to prevent more damage to other craft at the dock (*Minneapolis Tribune* 1899).

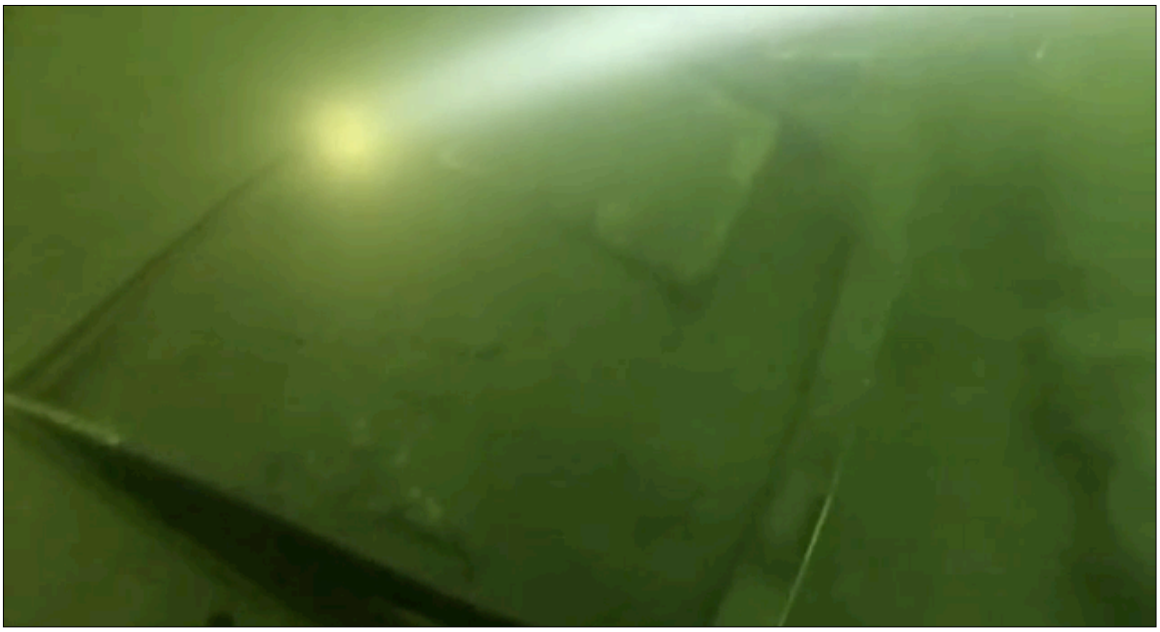


These sonar images of Anomaly 52 were recorded by MHM during the LMS-1 Project in November 2011. The graphics are actually two views of the same recording. The left side image is the sonar unit's down image with the anomaly clearly evident and her depth. The right side image indicates the survey boat traveled directly over the anomaly and 'cut it in half'.

MHM dove on the anomaly in June 2013 and it was immediately apparent the object was not *Saucy Kate*, but a 17-foot wooden runabout. The wreck is partially buried in silt, has paint extant in places, has many of her metal fittings and her steering wheel, and an intact windscreen that is lying on the foredeck. MHM's first impression was that the wreck was a Chris-Craft. MHM conferred with antique boat restorer Tom Sweeney and in his opinion, the wreck is a mid-1950s 17-foot Sportsman model, a type constructed between 1953-1959. A few diagnostic characteristics he pointed out include the tear-drop shaped lifting eyes, square transom, and the windscreen. Chris-Craft's 1956 Sportsman has a curved windscreen like the wreck. Further, between 1957-1959 the front seat is split into two while the wreck's front seat is long and couch-like. Unfortunately attributes such as the steering wheel are not diagnostic to a particular

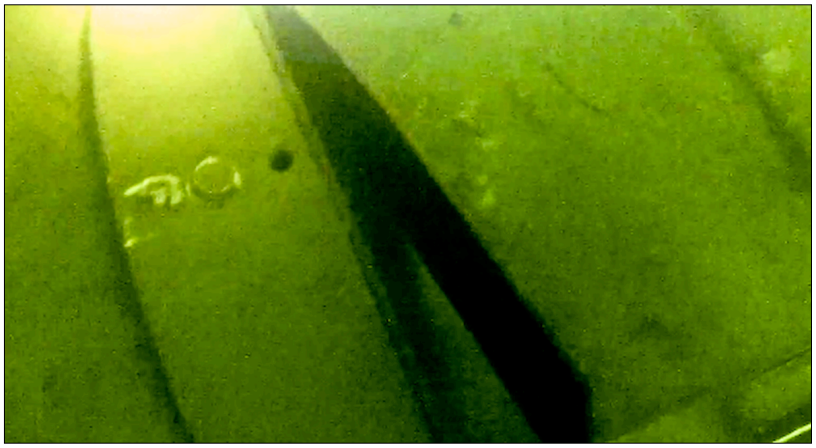
boat model and cannot be considered (Conrad 2002, 140; Tom Sweeney, personal communication June 24, 2013). MHM has not located any references to a sunken 1956 Chris-Craft Sportsman that remained on the bottom of the lake and her registration number is not discernible. Therefore, a sinking date cannot be established at this time and without further research, an archaeological site form cannot be submitted to the OSA. However, the site is a significant part of Lake Minnetonka's maritime history and the history of the famous Chris-Craft brand. The wreck is protected under the jurisdiction of the DNR.

The starboard side forward of the Chris-Craft Sportsman Wreck. The windscreen is no longer in place and is resting on the foredeck (by Ed Nelson).



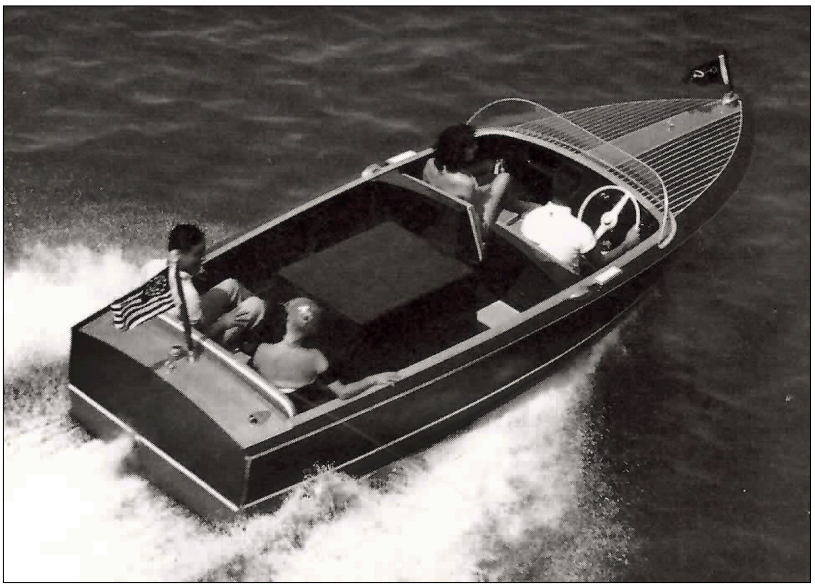
A view of the wreck's dislodged stern seat with her engine cover amidships (by Ed Nelson).

The stern of the Chris-Craft Sportsman Wreck with a lifting eye, gas tank cap, hole for the flagpole, and the dislodged seat back (by Ed Nelson).



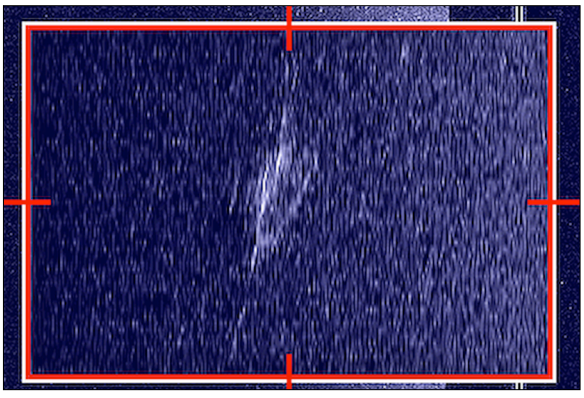
The bow of the Chris-Craft Sportsman Wreck has a white stripe painted on her foredeck. Also seen here is a starboard chock, running light, and a lifting eye (by Ed Nelson).

This image of a 1959 17-foot Chris-Craft Sportsman is identical to the 1956 Chris-Craft Sportsman Wreck with the exception of the split front seat (Mariner's Museum).

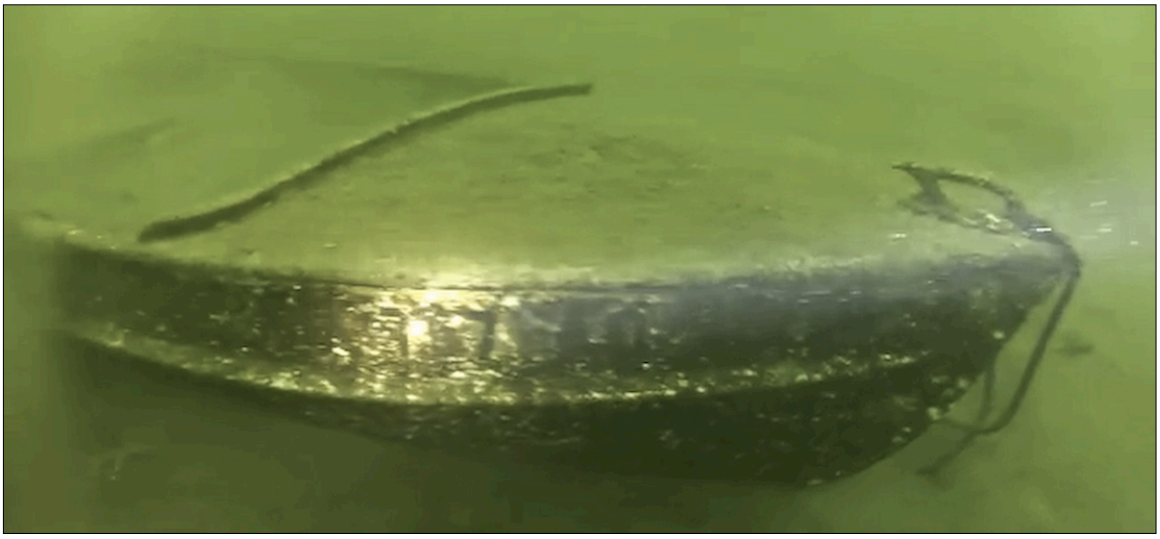


Aluma Craft Model R Runabout Wreck (Anomaly 20.1)

MHM recognized Anomaly 20.1 at the time of recording during the LMS-1 Project in November 2011 but its rather vague acoustical signature and lack of shadow strongly suggested it was a false target upon review. However, when evaluating footage again during this project, both MHM staff spotted this anomaly again after identifying Anomaly 69 (see below) since their signatures are somewhat similar. Owing to the fact that the HCWP investigated Wreck 1 and the Spring Park Bay Wreck (see below) and provided MHM the data, it was decided to dive on Anomaly 20.1 after diving on Anomaly 52 one day since it was easy to reach on the way back to the dock and the time fit into the project's budget. With very good visibility, it was obvious that Anomaly 20.1 was a small aluminum boat, of a type that MHM had never seen before. With some research, it was determined the wreck was an Aluma Craft and Alumacraft representative Cheynne Nordby confirmed she is a Model R runabout constructed between 1949-1959 (Cheynne Nordby, personal communication, June.28, 2013). Her registration number is MN 4757 AO and interestingly, on her port side, her number was affixed to the hull backwards. The Model R is 11.7 feet long and 54 inches wide and had an optional steering wheel console; this wreck does not have the console. Unfortunately the last year of registration cannot be discerned next to the registration numbers, but it may be 1960. However, this cannot be confirmed and therefore a sinking date cannot be established. Without further research, an archaeological site form cannot be submitted to the OSA. However, the site is a significant part of Lake Minnetonka's maritime history and the history of the famous home-grown Minnesota Aluma Craft brand. The wreck is protected under the jurisdiction of the DNR.



Left: MHM's sonar image of Anomaly 20.1, an Aluma Craft Model R Runabout, recorded during the LMS-1 project in November 2011. Right: The wreck viewed from above (by Ed Nelson)..



The starboard side bow of the Aluma Craft Model R Runabout Wreck with the bow handle. A line is still tied to the bow handle (by Ed Nelson).

Looking toward the transom stern of the Aluma Craft Model R Runabout Wreck with a thwart (seat) evident (by Ed Nelson).

ALUMACraft
model R
RUNABOUT

Here is a boat designed for speed, probably the fastest true stock model afloat. The Model R has competed on almost equal terms with specially designed racing hulls. When powered with a 16 h.p. motor this model produces speeds equal to other boats carrying much larger motors.

For swift, thrilling yet safe rides, the Model R is tops. If you want speed for thrills yet a fine fishing boat choose this greyhound of the Aluma Craft line. For complete construction details see pages 16, 17 and 18. (Control deck and steering wheel available as optional equipment.)

(Forward Deck included)

specifications

Length (over-all)	11'-7"
Width amidships	54"
Width at transom	52"
Depth forward	24"
Depth amidships	18"
Transom depth for motor	15"
Deck length (around gunwale)	47"
Splash rails	full length
Flotation tanks	3
Bottom design	round
Weight	139 lbs.
OBC approved for outboard motors up to	16 h.p.

model R runabout

ALUMA Craft

This is the fastest Aluma Craft. It competes favorably with special racing runabouts. OBC certified for 18 horsepower. Provides more speed with less horsepower. An ideal boat for use where speed thrills are desired and permissible. Very steady, has a 54" beam and a 52" transom and is less than 12 feet long. Built for speed yet makes a comfortable, stable fishing boat. Racy and attractive in natural satin finish aluminum or any of the three optional color combinations. Center deck and steering are optional.

page 16

See pages 26 and 27 for specifications.

1956 and 1958 Aluma Craft Model R catalog pages (Aluma Craft Boat Company, 1956, 11; 1958, 16).

The 1957 Aluma Craft Model R with the optioinal steering wheel and control deck. The Aluma Craft Model R Runabout Wreck does not have these options (Aluma Craft Boat Company 1957a, 14).

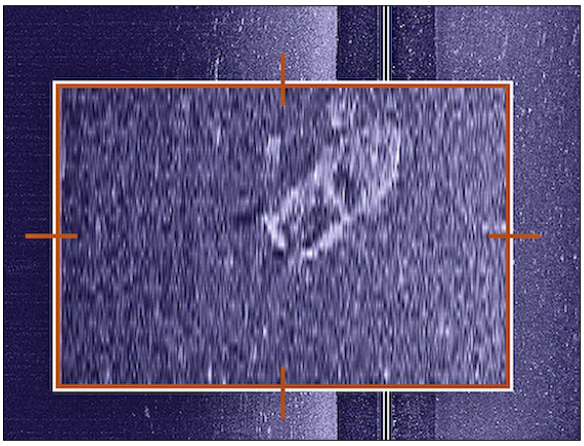
A 1957 Aluma Craft ad featuring the same version of the Model R Runabout as the Aluma Craft Model R Runabout Wreck (Aluma Craft Boat Company 1957b).

The 1950 Aluma Craft catalog with the Model R Runabout on the cover. This version of the Model R matches the Aluma Craft Model R Runabout Wreck in Wayzata Bay, steered with the motor's tiller (Aluma Craft Boat Company 1950, Cover).

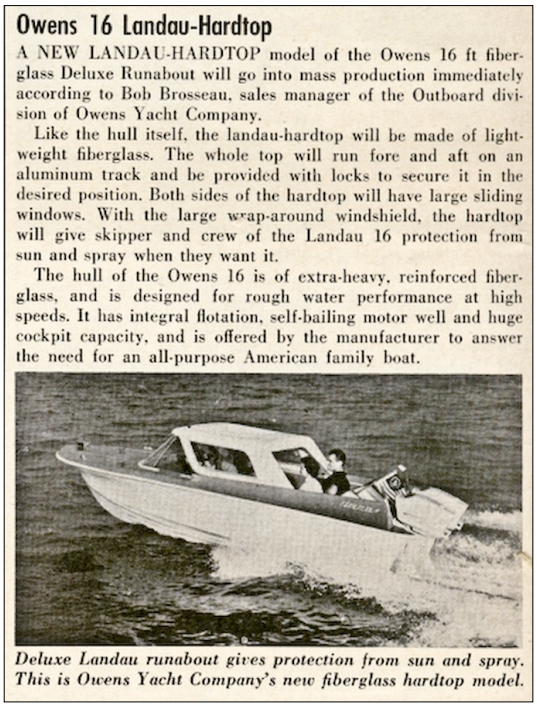
Owens Landau Wreck (Spring Park Bay Wreck, Anomaly 91)

MHM located Anomaly 91 in May 2012 during the LMS-2 Project, immediately recognizing the object as a boat, possibly a runabout like a Chris-Craft or Hacker-Craft. Video provided to MHM by the HCWP in May 2013 indicated the wreck is a fiberglass speedboat with the letters 'WENS' at the port stern, 'OWENS' with the 'O' missing. The Owens Yacht Company generally constructed larger cruisers and fishing boats, but in 1958 the firm designed and promoted, through an advertisement, the 16-foot Landau Sliding Top fiberglass outboard runabout, announced for production in 1959. The ad contains an image that seems to be a prototype Landau. In 1959 the Brooks Stevens-designed 17-foot Landau boat was introduced for mass production and in 1960, the 16.6-foot version. The 1958 ad also shows the boat carrying two motors (Handley Marine Division 1959; Outdoors, Inc. 1960, 1963).

This sonar image of the Owens Landau Wreck, formerly referred to as the Spring Park Bay Wreck, was recorded by MHM during the LMS-2 Project in May 2012.



This ad indicates there may have been a 1958 Landau prototype that did not go into mass production (Owens Yacht Company 1958).



Owens 16 Landau-Hardtop

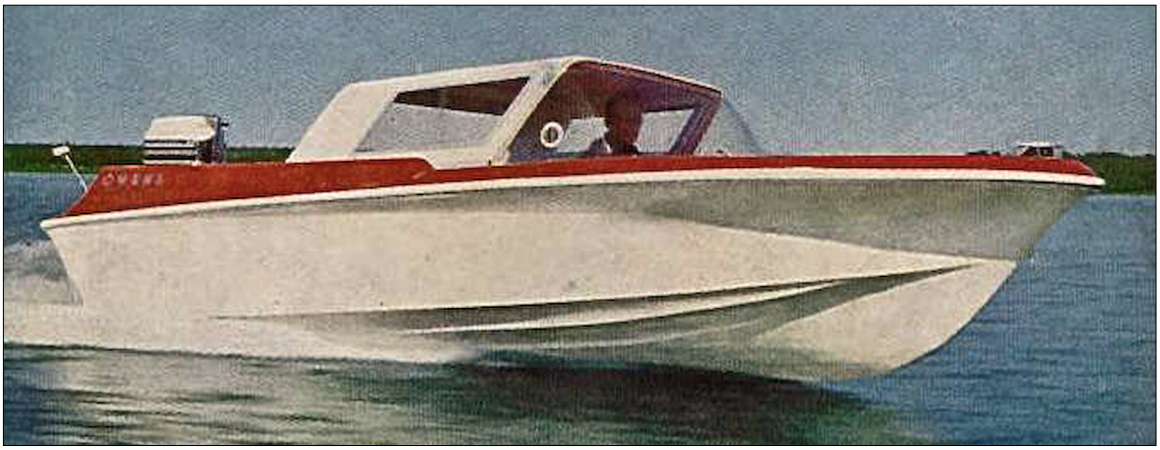
A NEW LANDAU-HARDTOP model of the Owens 16 ft fiberglass Deluxe Runabout will go into mass production immediately according to Bob Brosseau, sales manager of the Outboard division of Owens Yacht Company.

Like the hull itself, the landau-hardtop will be made of lightweight fiberglass. The whole top will run fore and aft on an aluminum track and be provided with locks to secure it in the desired position. Both sides of the hardtop will have large sliding windows. With the large wrap-around windshield, the hardtop will give skipper and crew of the Landau 16 protection from sun and spray when they want it.

The hull of the Owens 16 is of extra-heavy, reinforced fiberglass, and is designed for rough water performance at high speeds. It has integral flotation, self-bailing motor well and huge cockpit capacity, and is offered by the manufacturer to answer the need for an all-purpose American family boat.

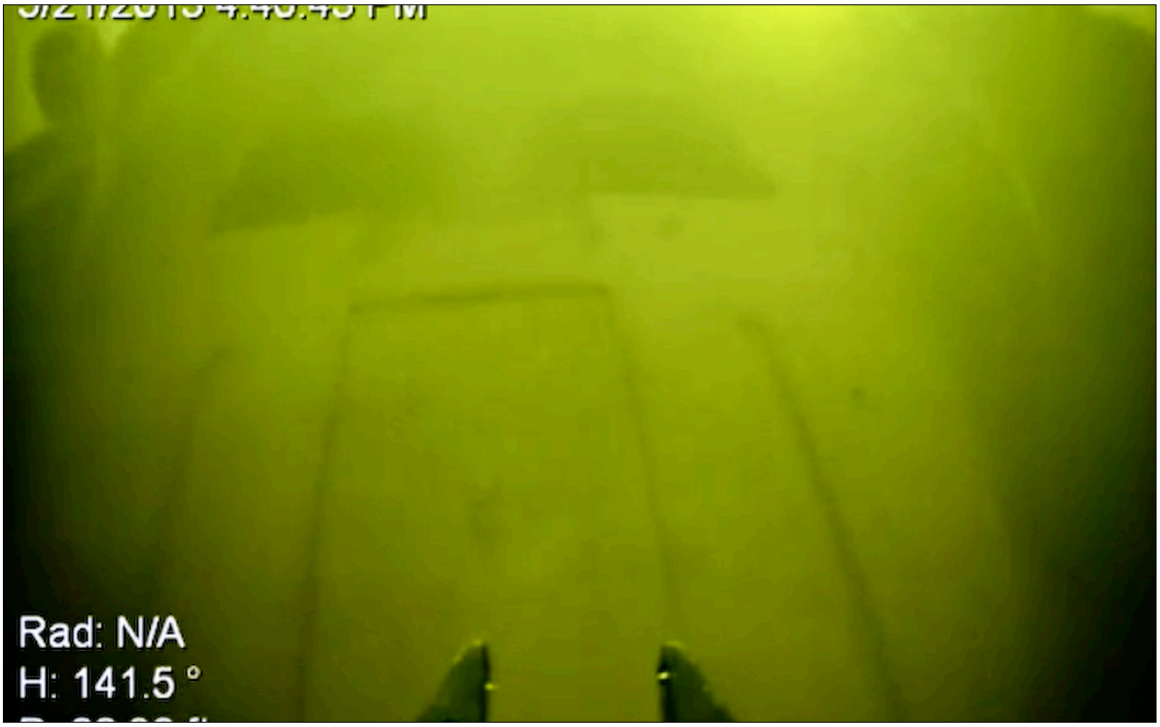
Deluxe Landau runabout gives protection from sun and spray. This is Owens Yacht Company's new fiberglass hardtop model.

This 1959 Owens Landau Sliding Top fiberglass boat is the 17-foot model. Two diagnostic characteristics of the Owens Landau are seen here: the two foredeck contours that run fore and aft and the pronounced forward end of the fin located amiships (Handley Marine Division 1959).



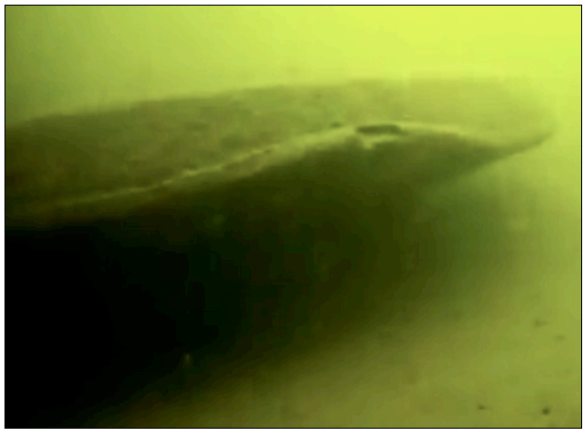
A 1960 ad for the Owens Landau Sliding Top, the same model as the Owens Landau Wreck. The pronounced forward end of the fin, that is located amidships, is clearly seen here. Other Owens speed boats of the 1950s have a gradual rise of the fin from amidships whereas the Landau model has the abrupt and pronounced rise, a diagnostic attribute (Owens Yacht Company 1960).

In July 2013 MHM visited the site and confirmed the wreck's identification as a 1960 16.6-foot Owens Landau Sliding Top model. The wreck has a nice ding on the port side bow, indicating a collision with a hard surface. She also has two holes in her foredeck that may be damage from anchors. The wreck has no outboard motor attached, an indicator she may have been sunk on purpose – or if she sank in an accident, the motor was retrieved. One suggestion has been that she sank in the tornado of 1965 – this cannot be confirmed at this point. Therefore, a sinking date cannot be established at this time and without further research, an archaeological site form cannot be submitted to the OSA. However, the site is a significant part of Lake Minnetonka's maritime history, is an example of a rare early fiberglass speedboat, and is protected under the jurisdiction of the DNR.



The foredeck of the Owens Landau Wreck. The fore and aft contours shown here are diagnostic attributes of the Landau model. The two prongs at the front of the image is the 'claw' of the ROV (by the Hennepin County Water Patrol).

The bow of the Owens Landau Wreck has two holes in the fiberglass, possibly from anchors. Another theory is that the boat sustained damage during the 1965 tornado and was sunk. However, the absence of the motor suggests she was sunk on purpose for some reason (by the Hennepin County Water Patrol).

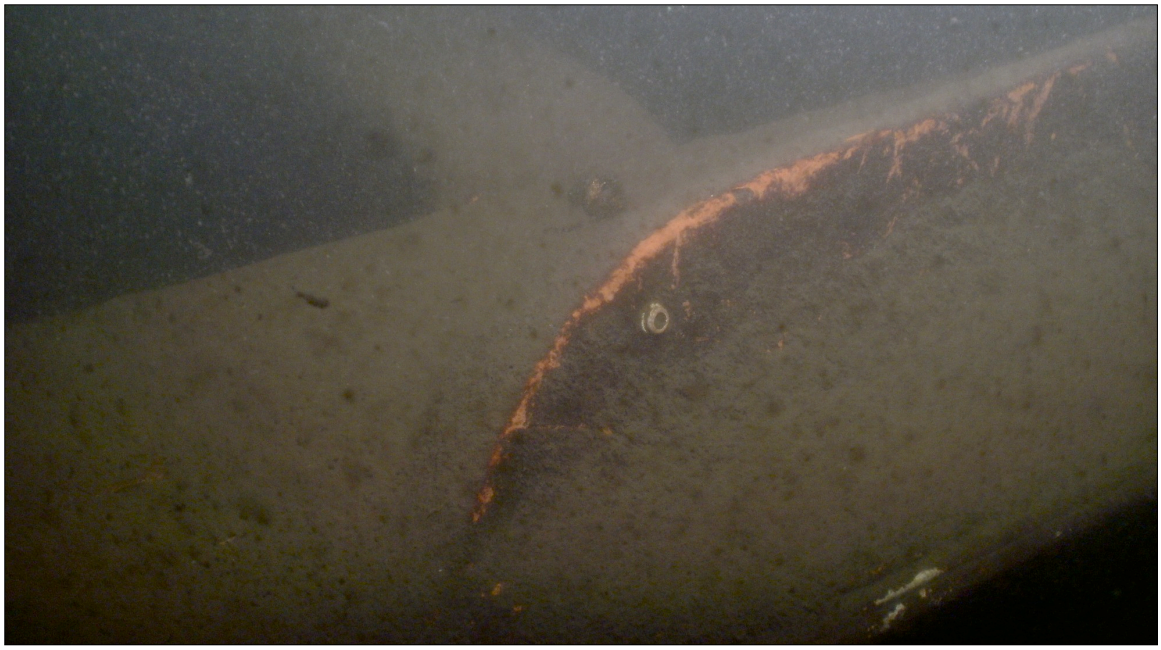


This bow ding is just slightly to port. This damage, by itself, could not have sank the Owens Landau Wreck. However, this damage may be the result of a larger bit of damage to the bow area not seen due to silt build-up (by the Hennepin County Water Patrol).

The cockpit of the Owens Landau Wreck (by the Hennepin County Water Patrol).

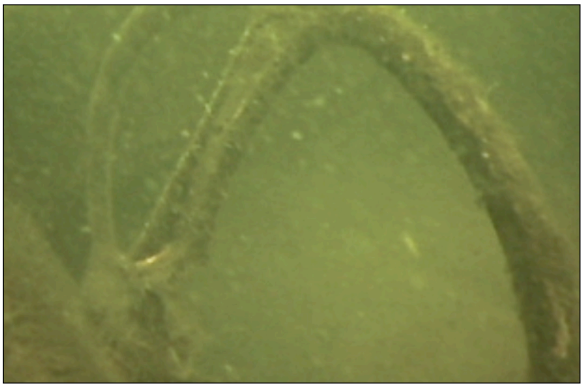
The Owens Landau Wreck's identification is complete on the starboard side of the wreck. The fin color is probably red, just like the Landau ad above (by Mark Slick).

On the port side of the wreck, the 'O' is missing from Owens (by Mark Slick).



This forward end of the port side fin shows how it distinctly rises from the gunwale of the wreck. This attribute is diagnostic for identifying thw wreck as an Owens Landau model (by Mark Slick)..

The aft end of the starboard side fin of the Owens Landawu Wreck (by Mark Slick).



The steering wheel of the Owens Landau Wreck (by MHM).

The Owens Landau Wreck has many metal fittings, like this cleat, still extant. These types of fittings are diagnostic attributes and assist nautical archaeologists in identifying wrecks (by MHM).

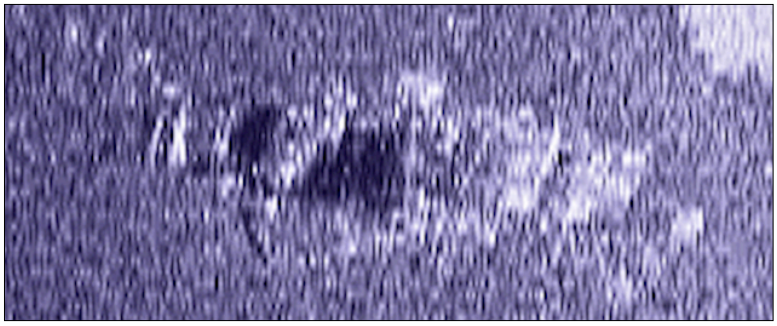
MHM volunteer Mark Slick recording the Owens Landau Wreck (by MHM).

Crystal Bay Houseboat Wreck (Anomaly 4)

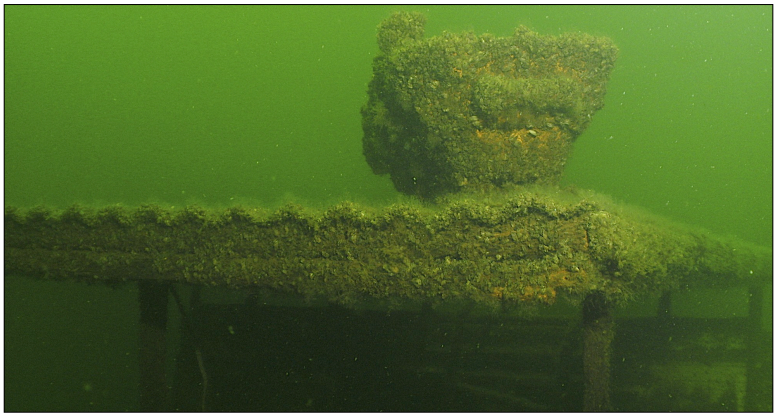
MHM took a sonar image of Anomaly 4 in November 2011 during the LMS-1 Project. A large object, MHM surmised the anomaly might be the sailing vessel *Coquette/Eugene Mehl*, reportedly sunk in Crystal Bay about 1884 (McGinnis 2010, 46). When diving on the anomaly in June 2013, the visibility was exceptional and MHM discerned the shape of the wreck quickly and recognized her as a houseboat. The wreck is 30 feet long, 9 feet wide, and has debris surrounding her. It is obvious the boat was hit by a great force in the bow, her galley is destroyed, and there is substantial damage along her port side. The aft section of her cabin still stands (but with damage), the roof is intact, and the steering wheel is still *in situ*. Interestingly there is a hibachi resting on the canopy roof, possibly moved there by a sport diver. Initially MHM hypothesized she might have been sunk by the 1965 tornado. However, MHM received an e-mail from an anonymous informant only known as 'Barb', a woman who knew the owners of the boat. Apparently

the vessel sank on July 3, 1976 in a collision with a speedboat when the houseboat was on her way to Lord Fletcher's restaurant. MHM learned that the HCWP has destroyed their records for non-lethal incidents prior to 1982, so no police reports exist for the accident (Lt. Art Saunders, personal communication July 1, 2013). MHM conducted a thorough search of all newspapers in print in the Lake Minnetonka area from 1950-1981 – and the Minneapolis Star and the St. Paul Dispatch around the reported sinking date – but no stories about the accident appeared. Accidents, both on the water and on the roads, were reported in all the print outlets of the time and a large boat such as this sinking should have made the news.

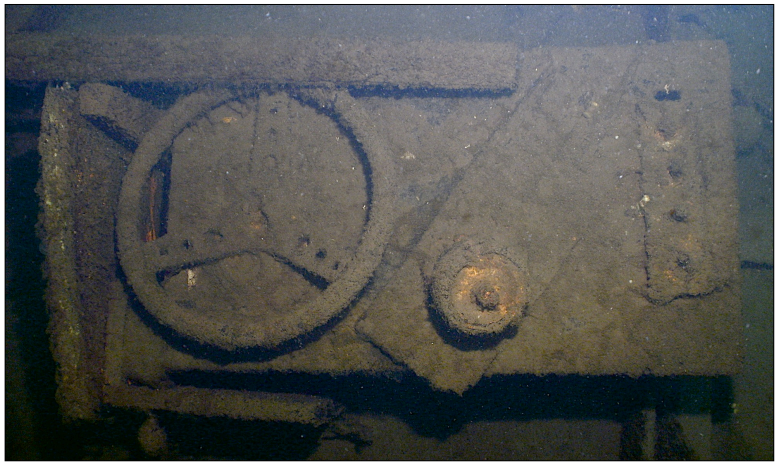
This sonar image of the Crystal Bay Houseboat Wreck was recorded by MHM during the LMS-1 Project in November 2011.



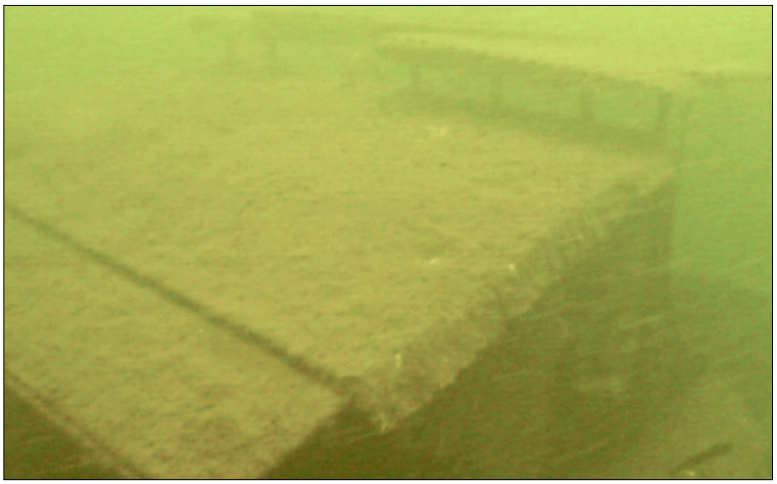
The canopy of the Crystal Bay Houseboat Wreck with the hibachi sitting on top (by Mark Slick).



The Crystal Bay Houseboat Wreck's steering wheel (by Mark Slick).

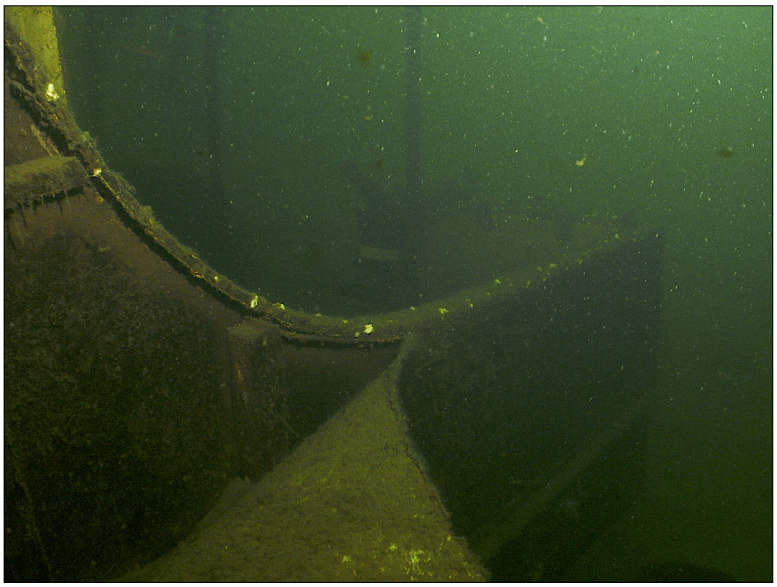


The roof of the Crystal Bay Houseboat Wreck looking toward the stern (by Mark Slick).

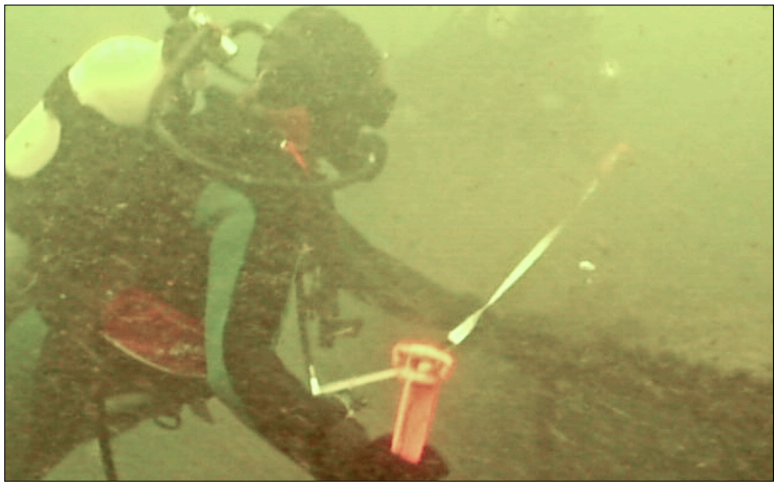


The galley of the Crystal Bay Houseboat Wreck displays the disarray that resulted from a collision (by Mark Slick).

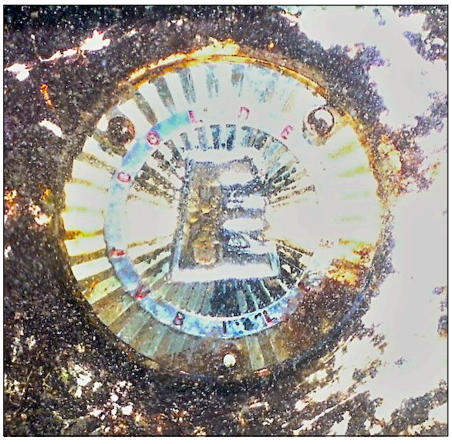
The port side of the Crystal Bay Houseboat Wreck has been serverely damaged, with the after quarter outer metal of the hull seperated from the inner layer (by Mark Slick).



MHM's Merriman and Olson measure the Crystal Bay Houseboat Wreck (by Mark Slick).



MHM contacted 'Barb' again and asked her to act as an intermediary with the boat's former owners – who also remain anonymous – but they will not be forthcoming with any more information. However, 'Barb' revealed that there was a story in the *Minnetonka Herald* about the accident. The *Minnetonka Herald* – in north, south, and west shore editions in its later years of publication – and in its last years as the *Minnetonka Sun*, was last published in 1968. If the reported sinking date is accurate, 'Barb' was incorrect about the news story. Lord Fletcher's opened in 1968 as a 'members only' club and in 1969, became open to the general public (*Wayzata North Shore Minnetonka Sun* 1968). If the houseboat was heading to the restaurant, it would have been 1968 or later. The houseboat herself is from the late 1950s, although her exact age is unknown; MHM suspects she is a Whitcraft brand constructed in Winona, although the only houseboats of this brand so far located had inboard motors. Her motor is still attached to her transom stern and it is a 1959 Evinrude Lark Golden Jubilee Deluxe Model 35 HP outboard as indicated by the special emblem affixed to the rear of the hood and the color scheme (Boats and Motors Web Site 1999). Assuming the July 1976 sinking date is accurate, the wreck cannot be designated as a nautical archaeological site until July 3, 2026. Until then, the site is a significant maritime historical resource for Lake Minnetonka and remains under the jurisdiction of the DNR.



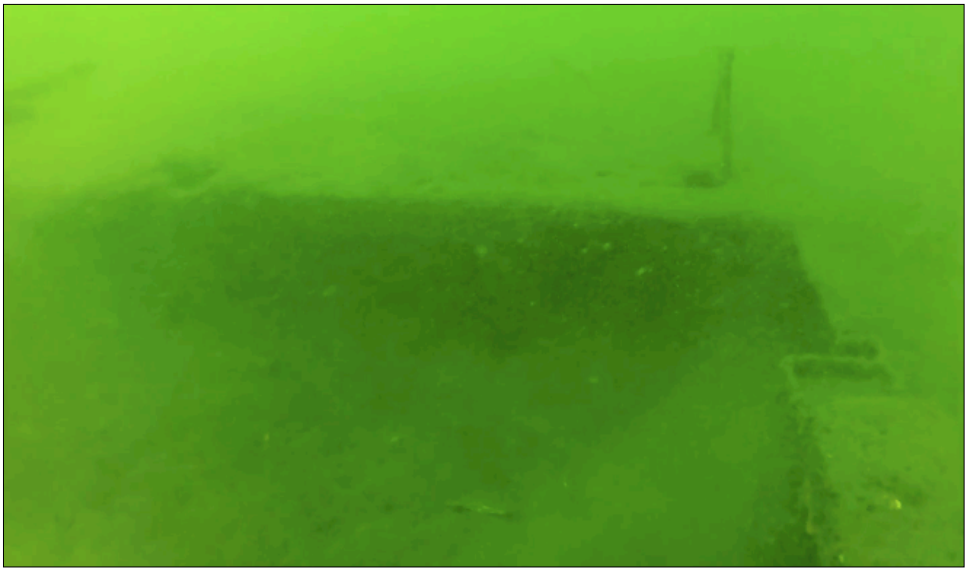
The 1959 Evinrude Golden Jublilee 35 HP Lark motor and emblem (by Mark Slick).

Echo Bay Metal Barge Wreck (Anomaly 54)

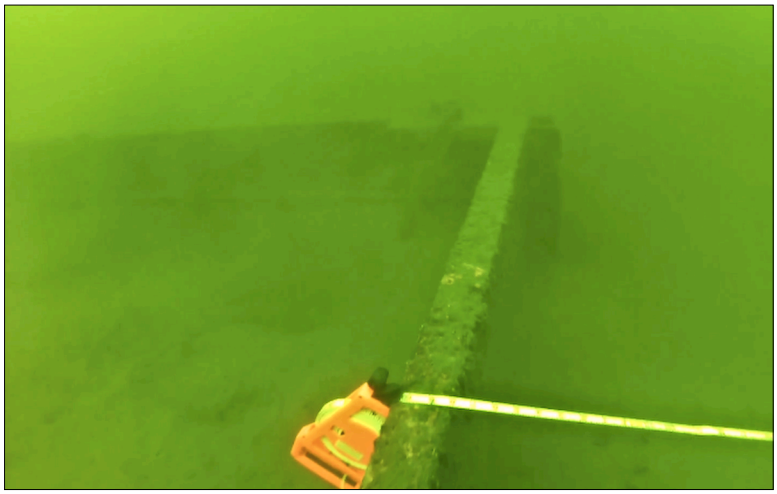
MHM recorded a sonar image of Anomaly 54 in November 2011 during the LMS-1 Project. In early June 2013, MHM dove on the site and identified the anomaly as a small metal barge. The wreck is 28 feet long, 6.65 feet in the beam, is constructed of welded metal with wood fittings, and there are metal cables attached both fore and aft, with the forward cable snapped. She is significantly exposed off the bottom of the lake and has a scow-style raking bow and transom stern. MHM contacted Jeff Jensen of Excelsior, a local informant, who indicated the wreck was built and used by the Minnetonka Portable Dredging Company (MPDC) of Shorewood and sank "about 30 years ago" (Jeff Jenson, personal communication, June 3, 2013). MHM contacted MPDC owner Tom Niccum and MPDC President Bill Niccum, to confirm that they lost the barge and when it sank. Bill Niccum designed and built the barge with no plans and she sank between 1981-1985 when a MPDC worker was heading toward Lafayette Bay towing the barge in high wind and waves. The barge was swamped, the towing cables snapped, and she went to the bottom of the lake (Bill Niccum, personal communication, July 9, 2013; Tom Niccum, personal communication, July 6. 2013).

This sonar image of the Echo Bay Metal Barge Wreck, formerly referred to as the Echo Bay Wreck, was recorded by MHM during the LMS-1 Project in November 2011.

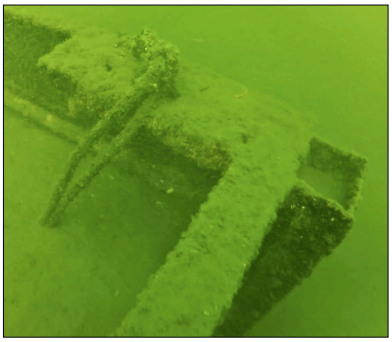
Looking toward the bow of the Echo Bay Metal Barge Wreck (by Kelly Nehowig).



Right: The measuring tape is hooked to the stern of the Echo Bay Metal Barge Wreck (by Kelly Nehowig)

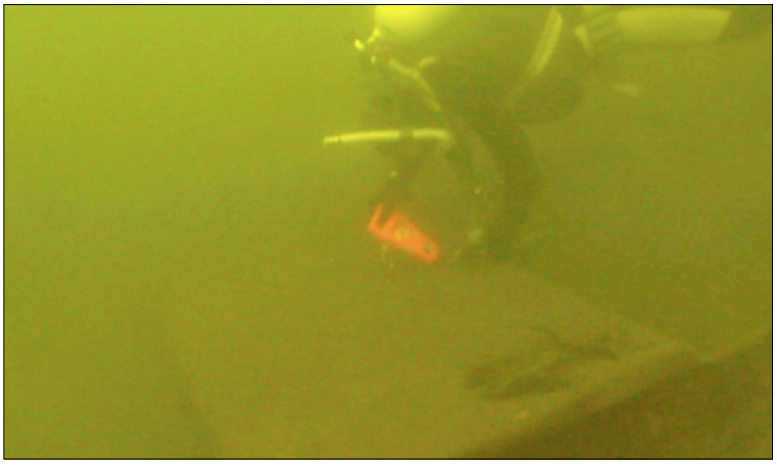


Below: The starboard aft corner of the wreck with a towing cable evident.

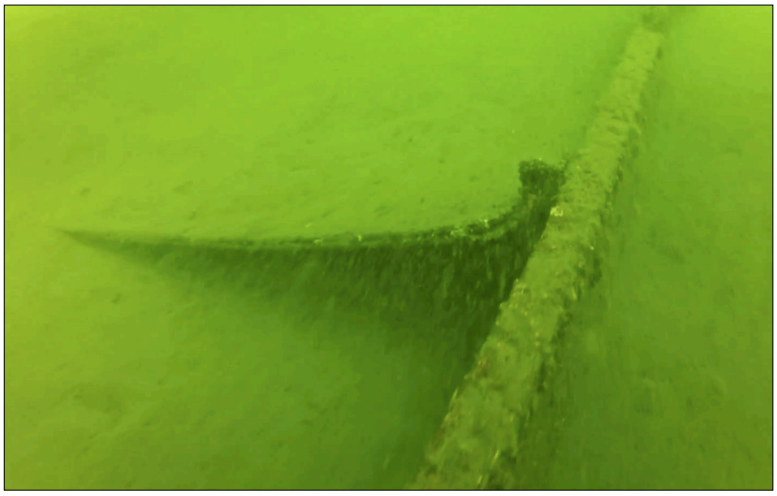


Currently the Echo Bay Metal Barge Wreck cannot be designated as a nautical archaeological site. However, considering she is 'lost property on state land', MN Statute 16B.25 applies in this case. Both Bill and Tom Niccum expressed interest in raising the barge and MHM contacted the DNR in order to follow the proper legal channels concerning the wreck. The issue is now in the hands of DNR Conservation Officer Brent Grewe. MHM prefers that the barge remain on the lake bottom and become a significant part of the planned Lake Minnetonka Historic Shipwreck District – a great comparison to the wooden model barge Wayzata Bay Wreck – particularly since the Echo Bay Metal Barge Wreck was locally-produced without plans, an example of Bill Niccum's craft and handiwork, constructed on the shores of Lake Minnetonka in Shorewood. The wreck would be a great addition to the forthcoming historic district and testament to Lake Minnetonka's maritime history if left on the bottom of the lake. Currently the wreck is under the jurisdiction and protection of the DNR until such time as the department makes a decision as to the wreck's fate, and proper permits are obtained to raise her.

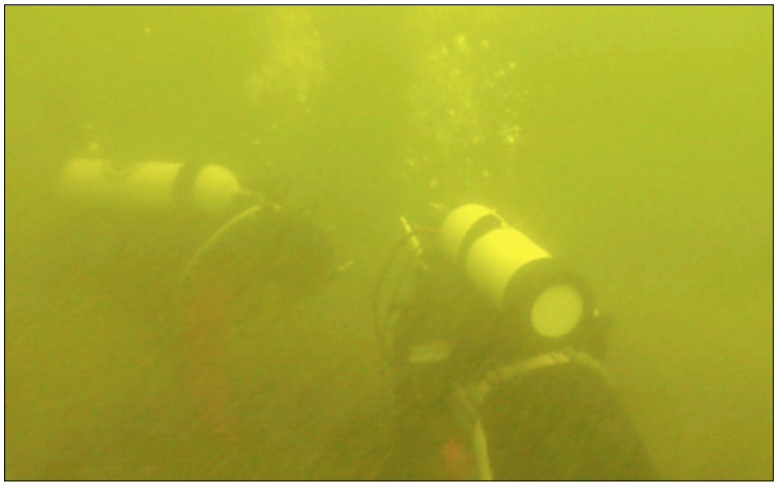
MHM's Olson doing a measurement on the Echo Bay Metal Barge Wreck (by Mark Slick).

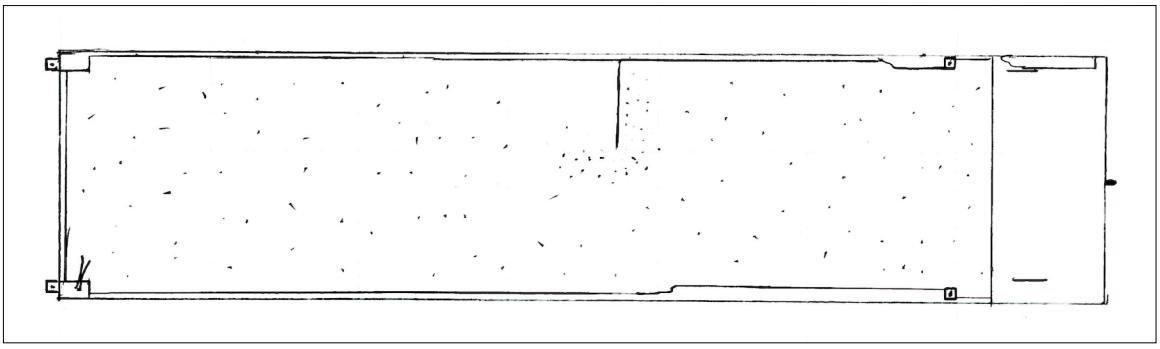


A piece of plywood has dislodged from the bottom of the Echo Bay Metal Barge Wreck on her port side (by Kelly Kehowig).



MHM volunteer Kelly Nehowig and MHM's Olson taking measurements on the Echo Bay Metal Barge Wreck (by Mark Slick).



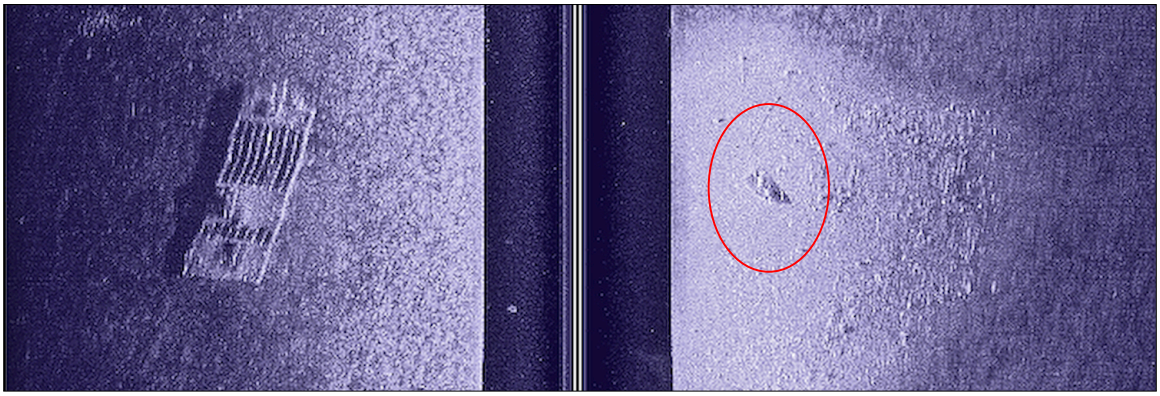


MHM's drawing of the Echo Bay Metal Barge Wreck.

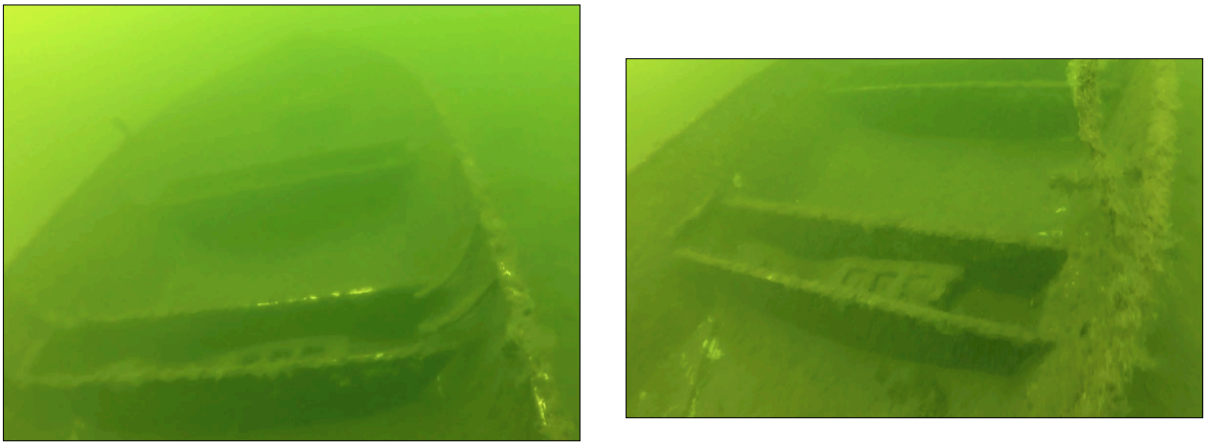
Lund Aluminum Fishing Boat Wreck (Anomaly 69)

Anomaly 69 was located by MHM in September 2011 during the LMS-1 Project. Two recordings of the anomaly at different angles produced two dissimilar acoustical signatures, neither obviously indicating a wreck. MHM included this anomaly within the parameters of this project because of its proximity of the St. Albans Bay Wreck. MHM

dove on Anomaly 69 in June 2013 and found a 16-foot Lund aluminum fishing boat with a 5.7-foot beam. The wreck's seats had been removed and concrete blocks were placed inside, causing negative buoyancy resulting in her sinking. During newspaper research, MHM located two articles about a series of small craft thefts from Tonka Bay in July 1977. One of the boats, reported missing on July 13, belonged to a Wayzata resident and was described as a 16-foot long Lund aluminum fishing boat with the registration MN 4617 DQ. Her 1976 25 HP Johnson motor and other equipment were stolen as well (*Lake Minnetonka Sun* 1977; *Maverick* 1977). The registration sequence on the wreck matches the stolen boat's designation. MHM contacted the HCWP to report the found stolen property; there is no open criminal case involving the wreck, the statute of limitations has expired in any case, and the HCWP records have been destroyed as mentioned above. The wreck is classified as an historical cultural resource and is under the jurisdiction of the DNR until July 2027 when she can be designated as a nautical archaeological site through the OSA.



This sonar image of the Lund Aluminum Fishing Boat Wreck was recorded by MHM during the LMS-1 Project in September 2011. Note her location in relation to the St. Albans Bay Wreck.



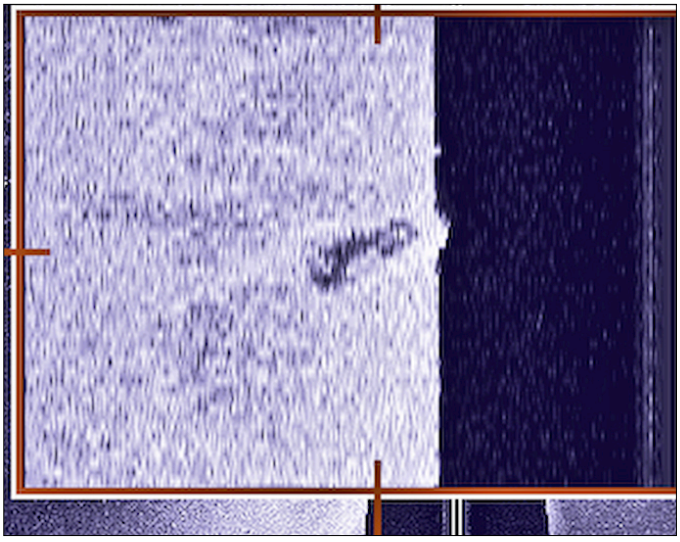
Left: Looking toward the bow of the Lund Aluinum Fishing Boat Wreck. Right: Amidships view of the wreck. Both images show the wooden seats have been removed and concrete blocks placed inside the wreck, causing negative buoyancy (by Kelly Nehowig).

The Lund Aluminum Fishing Boat Wreck's registration number is still visible: MN 4617 DQ (by Mark Slick).

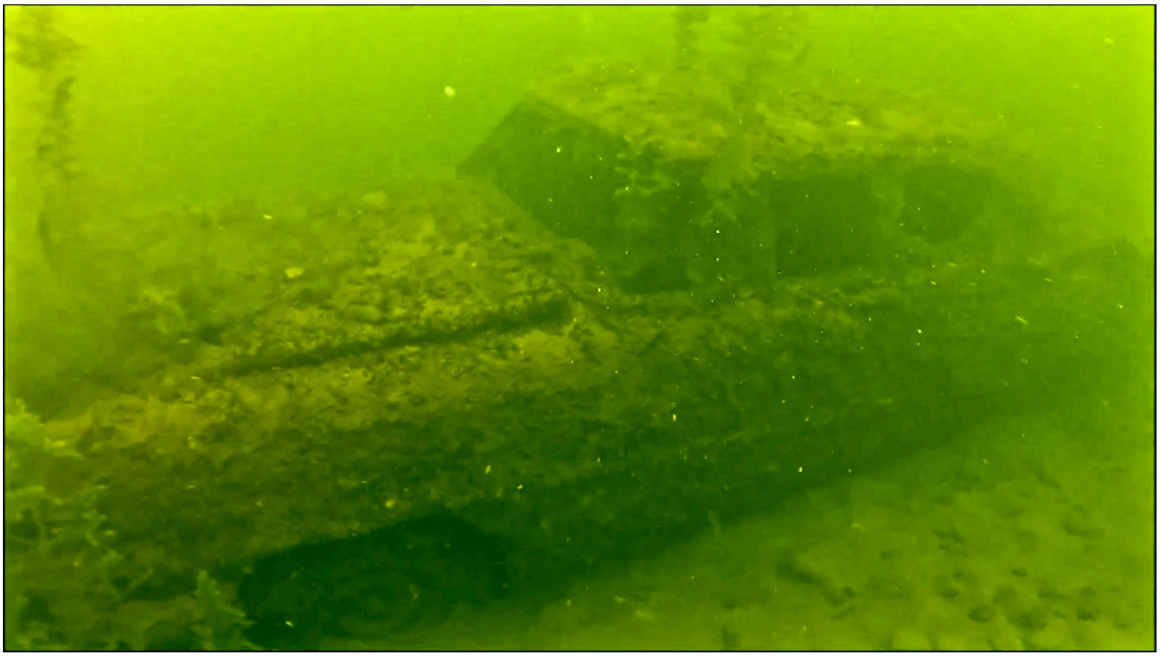
1955 Mercury Monterey Four Door Sedan (Anomaly 21)

MHM located Anomaly 21 during the LMS-1 Project in November 2011. In August 2012 MHM's long-time volunteer Kelly Nehowig conducted a dive in Wayzata Bay, located a car, and informed MHM that Anomaly 21 is likely the vehicle. The car has been a popular dive site over the years. In October 2012, MHM dove on the car as the beginning of the LMNA-1 Project and to introduce our new group of volunteer divers to each other. The car is 17 feet long and 5 feet wide. Through research, MHM determined it is a 1955 Mercury Monterey Four Door Sedan. Initially MHM wasn't sure if the car was a Monterey Sedan or a Custom Sedan due to the fact that most of the differences in these two car models are internal, but the difference in the rear bumper confirmed it is a Monterey (Ford Motor Company 1955). There is also a slight difference in the rear door design of each model, but the number of zebra mussels attached to the car body doesn't allow an exact identification using that attribute.

This sonar image of the 1955 Mercury Monterey Four Door Sedan was recorded by MHM during the LMS-1 Project in November 2011.

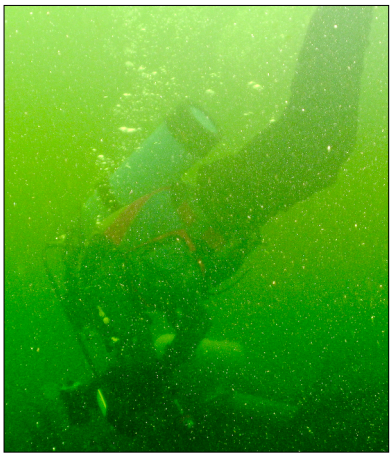


The 1955 Mercury Monterey Four Door Sedan (Ford Motor Company 1955).



A full view of Anomaly 21, the 1955 Mercury Monterey Four Door Sedan (by Kelly Nehowig).

MHM Trustee Steve Hack (by Mark Slick).



MHM Volunteer Mike Berger (by Mark Slick).

MHM Volunteer Mark Slick (by Ed Nelson).

MHM Volunteer Ed Nelson (by Kelly Nehowig).

MHM Volunteer Kelly Nehowig (by Mark Slick).

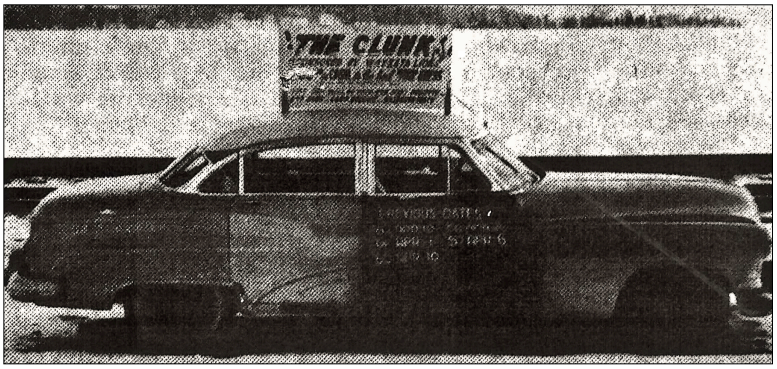
MHM's Christopher Olson (by Mark Slick).

MHM's Ann Merriman and Chair Mike Kramer (by Ann Nehowig).

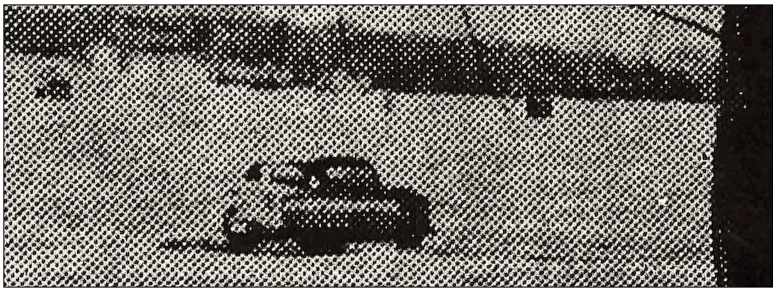
The Group: Mark Slick, Mike Berger, Christopher Olson, Ann Merriman, Steve Hack, Kelly Nehowig, Ed Nelson, and Mike Kramer (by Ann Nehowig).

MHM's Chair Mike Kramer postulated that the car's sinking was the result of a 'Dunk the Clunk' contest (personal communication, October 21, 2012). Beginning in 1957, the Wayzata Lions Club sponsored a fundraiser to benefit Camp Courage and other programs. A car was placed on the lake ice in Wayzata Bay in March and "guesses" were taken as to the date and time the 'clunk' would go down. None of the makes or models of the cars are recorded in newspapers, but some photos of the yearly clunks were published – but none of these vehicles are the 1955 Mercury Monterey. In mid-March 1961 it was recorded that Melvin Peterson's 'clunk' was waiting to be dunked on Wayzata Bay. In 1967, it was mentioned that the Lions Club would retrieve the 'clunk' from the lake bottom but in previous years there was no mention of retrieval. In 1968 the car had a line attached to it for easier pull-out as seen in the newspaper photo. Several hundred up to 1,150 people (in 1963) guessed the dunking date yearly, and it was reported consistently that "clunk watchers" eating at Hart's Cafe (the location of present-day Sunsets restaurant) busily made yearly predictions (*Minnetonka Herald* 1957a-c, 1959, 1960a-c, 1961, 1963a-b, 1964, 1965, 1966, 1967; *Minnetonka Sun* 1968).

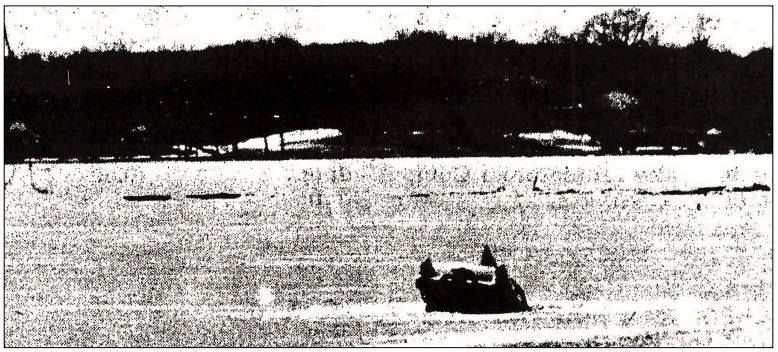
The Clunk of 1963 initially looked like Anomaly 21, but they are not a match (*Minnetonka Herald* 1963a).



The Clunk of 1964 is a two-door car while Anomaly 21 has four doors (*Minnetonka Herald* 1964).



The Clunk of 1967 went down early that season. The bumper is different than the bumper found on Anomaly 21 (*Minnetonka Herald* 1967).



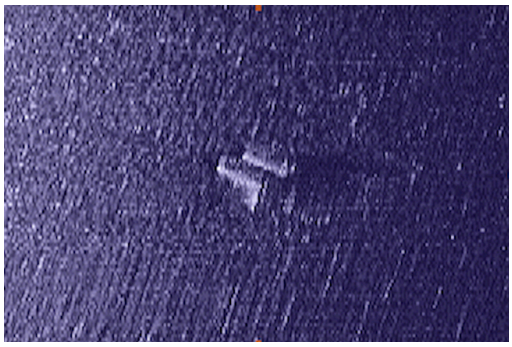
The Clunk of 1968 is similar to Anomaly 21, but they have different tailight designs and this Clunk may be a two-door model (*Minnetonka Sun* 1968).

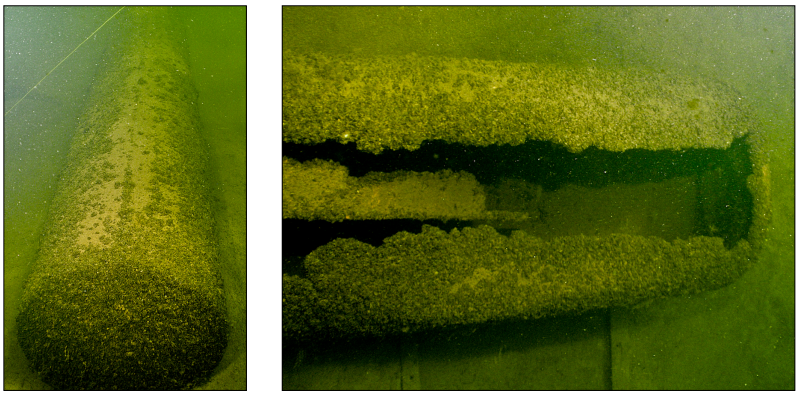
'Dunk the Clunk' was a yearly cultural activity for the north shore of Lake Minnetonka from 1957 to 1968. MHM postulates that at least one of the 'clunks' was not retrieved and is the 1955 Mercury Monterey Four Door Sedan. From the photos and information provided in the newspaper, if Anomaly 21 is a 'clunk', it did not sink in 1963, 1964, 1967, or 1968 – the earliest it could have gone down was 1957 and the latest was 1965. MHM pursued additional information about the 'Dunk the Clunk' contest from the Wayzata Lions Club, but with no results. Of course another hypothesis could be that a fisherman lost his car through the ice during an outing. However, because of Anomaly 21's location near the shore in full view of Hart's Cafe to the northwest and in shallow water, MHM favors that it is a 'clunk'. Regardless, Anomaly 21 represents an historical maritime cultural resource reflecting a winter lake activity that is protected under the jurisdiction of the DNR at the present time.

Pontoon Raft (Anomaly 2)

MHM recorded Anomaly 2's acoustical signature in November 2011 during the LMS-1 Project and dove on it in June 2013. MHM's Olson suspected the object was a barrel raft and in actuality, it is an overturned pontoon raft. It measures 8 by 11 feet and is constructed of wood and metal. One of the pontoons is intact but the other has a gash running its length, indicating why it may have gone down. The raft's pontoons are covered in zebra mussels. MHM cannot determine when it sank, but probably within the last 30 years. Anomaly 2 is a protected cultural resource under the jurisdiction of the DNR.

This sonar image of Anomaly 2 was recorded by MHM during the LMS-1 Project in November 2011.



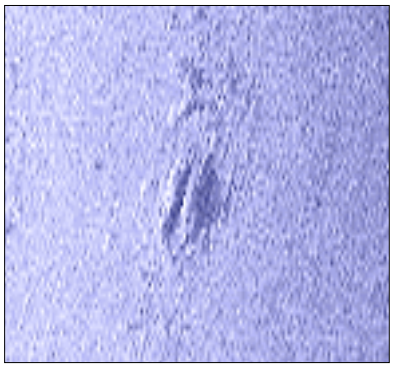


The two pontoons of the Pontton Raft, both covered in zebra mussels (by Mark Slick).

Anomaly 118

Anomaly 118 was located in May 2012 during the LMS-2 Project and it was MHM's priority target for the LMNA-1 Project because its sonar signature strongly suggested it was a dugout canoe. MHM dove on the anomaly in early June 2013 and determined it is two lines of rocks about 7 feet long positioned in such a way as to cast a shadow between them. This shadow suggested the inside of the canoe and the rocks – that are not individually differentiated in the acoustical signature – appeared to be the sides. The identification of Anomaly 118 as rocks is a disappointment, but while conducting research, MHM located a 'missing' dugout canoe from Lake Minnetonka. In 1934 a dugout was dragged out of the North Arm during the installation of a dock. MHM did not know the disposition of this rare artifact until June 2013 while looking through photograph files at the Western Hennepin County Pioneer Association Museum. One of the museum's volunteers suggested we might want to see their dugout and MHM recognized the vessel immediately as the 'missing' canoe. This canoe is only one of four aboriginal examples known in the state and its maritime historical value is incalculable to the Dakota and to Minnesota.

This sonar image of Anomaly 118 was recorded by MHM during the LMS-2 Project in May 2012.

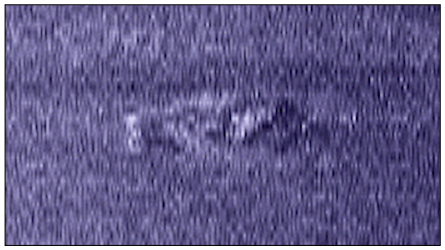


The 'found' Lake Minnetonka North Arm Dugout Canoe (by MHM).

Anomaly 1

MHM recorded the acoustical signature of Anomaly 1 during the LMS-2 Project in May 2012. The 20-foot long sonar image was defined and strongly suggested a watercraft. Like Anomaly 4, the Crystal Bay Houseboat Wreck, MHM postulated it might be the *Coquette/Eugene Mehl* wreck (McGinnis 2010, 46). MHM dove on the anomaly in June 2013 and found an odd collection of weed clumps and cattails that resembled a bog on the bottom of a lake in 60 feet of water. MHM Chair Mike Kramer confirmed that during low water conditions in 1990-1991, several floating bogs broke away from the shorelines of the lake and traveled around with the wind (personal communication, June 2013). MHM contends Anomaly 1 is one such bog – and we now believe at least one other anomaly that has not yet been investigated is a sunken bog as well.

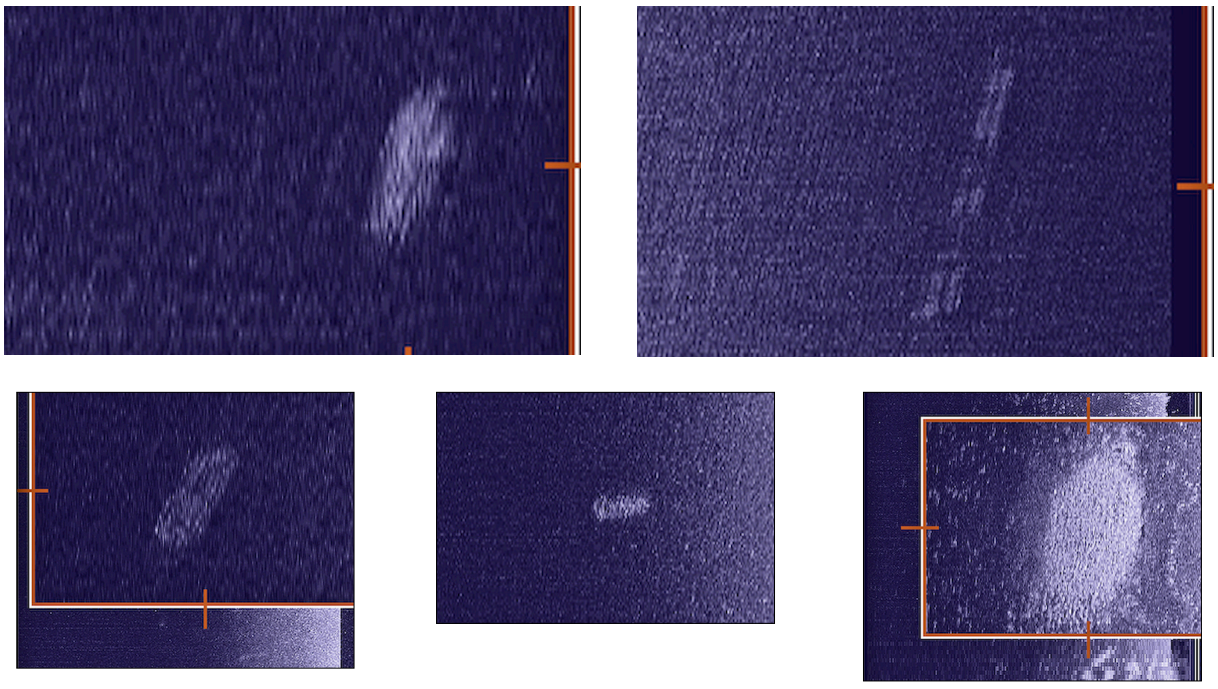
This sonar image of Anomaly 1 was recorded by MHM during the LMS-1 Project in November 2011.



Images of the sunken bog (by Mark Slick).

Anomalies 3, 22, 102, 103, 106

MHM investigated Anomalies 3 and 22 (recorded in November 2011 during the LMS-1 Project) and Anomalies 102, 103, and 106 (recorded in May 2012 during the LMS-2 Project) for study during the LMNA-1 Project because their sonar signatures were distinctly 'boat-shaped' and one (Anomaly 22) resembled a long, thin dugout canoe. Also, they were relatively close to other priority targets and MHM could confirm their identities rather quickly due to their shallow nature – basically get them 'off the anomaly list'. MHM was not surprised that Anomaly 22 was a false target – its signature is not greatly defined and its extreme length compared to its width would have made a very large dugout canoe. Anomaly 106 was a lighter boat-shaped area lying in a darker area – meaning it was raised off the bottom compared to the matrix around it – and it is near the island where the barge *Mermaid* (the former *Governor Ramsey*, the first steamer on Lake Minnetonka) had been abandoned. The anomaly was the same size as the *Mermaid* and MHM postulated she may have been dragged into the lake and sunk at some point – she was not. The acoustical signatures of Anomalies 3, 102, and 103 strongly suggested small boat wrecks and MHM was disappointed when they turned out to be false targets. The lake bottom only held soft silt when MHM did line searches for the non-existent anomalies – probing of the area turned up nothing solid. However, MHM has learned much from this lack of evidence at the locations of these 'anomalies' – negative results are still results and are data to be used to re-evaluate future research priorities.



Anomalies 3, 22, 102, 103, and 106, all false sonar targets.

Conclusion

At this point, the Capsized Wooden Boat Wreck (21-HE-418) site presents the most number of archaeological questions that need to be answered since she is upside down and her exact type cannot be determined. However, this site does allow MHM to understand the wreck's framing pattern as seen by the slot headed wood screws evident on the wrecks' bottom. The Wayzata Bay Wreck (21-HE-401) is the most historically significant because she is a model barge, is intact, is deep enough not to be affected by zebra mussels, and her preservation is remarkable. As stated previously, the Wayzata Bay Wreck is one of only three known model barge wrecks known to exist – and the only one in a cold, deep, static lake environment. Many questions remain about the construction and histories of the St. Albans Bay Wreck (21-HE-400), the Wayzata Bay Rowboat Wreck (21-HE-417), and the Gideon Bay Wreck (21-HE-415). Ironically, one of the 'newest' wrecks so far located on the bottom of Lake Minnetonka poses many questions that require continued investigation, the Crystal Bay Houseboat Wreck (Anomaly 4). The lack of public information about this wreck is frustrating and her maritime history is currently lacking. Less puzzling is the construction and age of the Wayzata Bay Motorized Ice Boat Wreck (21-HE-416), the Chris-Craft Sportsman Wreck (Anomaly 52), the Aluma Craft Model R Wreck (Anomaly 20.1), the Owens Landau Wreck (Anomaly 91), the Lund Aluminum Fishing Boat Wreck (Anomaly 69), the Echo Bay Metal Barge Wreck (Anomaly 54), the Pontoon Raft (Anomaly 2), and the 1955 Mercury Monterey Four-Door Sedan (Anomaly 21) – although the disposition dates of Anomalies 2, 20.1, 21, 52, and 91 have not been determined. There is little information available about the history and construction of the Tug *Priscilla* (Wreck 1, 21-HE-404). However, inferences can be made about her work with the Minnetonka Dredging Company using available photographic evidence and newspaper accounts. Further, the construction plans for the tug *Hercules*, also built in 1906 for Lake Minnetonka, exist and comparisons can be made.

Maritime Heritage Minnesota has developed specific suggestions for future maritime historical and nautical archaeological work in both Upper and Lower Lake Minnetonka. MHM was moderately confident that Anomalies 1, 3, 102, 103 and 118 were sunken watercraft. However, after diving on these anomalies, only two of them were actual objects – a sunken bog and two lines of rocks. It must be noted that these two anomalies cast acoustical shadows when recorded while the other three anomalies did not. It is also helpful to review the sonar images of Anomalies 20.1, 21.1, and 21.2, wrecks that MHM initially did not recognize due to their indistinct nature. With these realizations and with the completion of the LMNA-1 Project, MHM is now able to re-prioritize the anomalies recognized during the two surveys based on the results recorded above. In the next phase of Lake Minnetonka research, MHM will investigate Anomalies 107, 83 (West Arm Pontoon Wreck), 81, 80, 5, 60, 61, 60.1, 66, 63.1, 67, 57, 59, 58, 55, 46, 43, 31, 39, 32, 10, 24.1, 25, 27, and 17.1. Of these new priorities, 13 of them were categorized as 'other' after the LMS-1 and LMS-2 Projects – in other words, they were classified as the least important. It is evident through MHM's investigation of the wrecks and anomalies during the LMNA-1 Project that a re-examination of the recorded sonar footage may turn up additional anomalies that were initially judged less

likely to be cultural resources. MHM will also extend this search to the sonar recordings of Lake Waconia and White Bear Lake, surveys conducted in 2012 – and MHM has already re-prioritized the recognized anomalies from those lakes for investigative purposes. Therefore, the results from the LMNA-1 Project will benefit MHM"s work in other lakes and when reviewing new sonar footing during future remote sensing surveys.

Over 100 anomalies located on the bottom of Lake Minnetonka remain to be identified. Future work advocated by MHM is in keeping with the recommendations submitted to the SHPO in 1997 concerning the historical significance of Lake Minnetonka's wrecks – those known and unknown. As stated in the report, it was determined that "each of the individual vessels [*Como*, *George/Excelsior*, *Hercules*, *Hopkins/Minnetonka*, *Minneapolis*, *White Bear*] are potentially eligible for nomination to the National Register of Historic Places under criteria A, C, and D. As a group, these vessels...form a strong and important submerged cultural resource. The historic shipwrecks in Lake Minnetonka may be the single most well-preserved group of excursion vessels in the United States" (Hall, Birk, and Newell 1997, 62). However, the excursion vessel classification is too broad to typify the wrecks considered by the SHPO. Therefore, MHM recognizes the wrecks by their nautical construction attributes, materials used, propulsion, and design, not their function. With this consideration, MHM has recognized these wreck types that expand the base of historic wrecks in Lake Minnetonka: 1 un-powered wooden model barge; 1 un-powered wooden steam dredge; 1 capsized wooden boat with slot head wood screws; 2 wooden rowboats; 3 torpedo stern wooden steam propellers; 1 wooden sternwheel steamer; 1 wooden sidewheel steamer; 2 wooden steam (originally, 1 converted to internal combustion) propeller tugs; 1 metal and wood motorized ice boat; 1 inboard wooden runabout; 1 outboard aluminum runabout; 1 fiberglass speedboat with fins; 1 outboard aluminum fishing boat; 1 outboard metal and fiberglass houseboat; 1 un-powered metal barge; and 1 pontoon boat (yet to be dove upon, Anomaly 83, the West Arm Pontoon Wreck). The maritime sites recognized thus far include: 1 steamboat pier at Big Island; 1 pontoon raft; and a 1955 Mercury Monterey Four-Door Sedan. It is obvious that the types of sites that exist in Lake Minnetonka are diverse, archaeologically and historically significant, and worthy of great attention. The data collected during the LMNA-1 Project is the first phase that will allow the development of a Historic Shipwreck District nomination for Lake Minnetonka – a first for the State of Minnesota – and if appropriate, a State Underwater Archaeological Park.

References

Aluma Craft Boat Company. 1950. *Aluma Craft: Queen of the Waterways, Specifications and Catalog*. NP: Minneapolis, MN.

_____. 1956. *Aluma Craft Catalog*. NP: Minneapolis, MN.

_____. 1957a. *Aluma Craft: Quality Afloat*. NP: Minneapolis, MN.

_____. 1957b. *Aluma Craft: Yours...Truly for Fun!* NP: Minneapolis, MN.

_____. 1958. *Aluma Craft: 1958 Boat Show*. NP: Minneapolis, MN.

Barry, James P. 2009. *Hackercraft*. Voyageur Press: Minneapolis, MN.

Boats and Motors Web Site. 1999, 12-14 December, www.wmi.org.

Davis, Kenneth S. 1959. *The Hero: Charles A. Lindbergh and the American Dream*. Doubleday and Company: New York.

Excelsior Cottager. 1896, 13 November.

Ford Motor Company. 1955. *1955 Mercury*. NP: Detroit, MI.

Hall, Henry. 1884. *Report on the Ship-Building Industry of the United States*. Government Printing Office: Washington, DC.

Hall, Wes, Douglas Birk, and Sam Newell. 1997. *Shipwrecks of Minnesota's Inland Lakes and Rivers*. Prepared for the Minnesota State Historic Preservation Office by Mid-Atlantic Technology and Environmental Research, Inc.: Castle Hayne, NC.

Handley Marine Division. 1959. *Dealer Brochure*. NP: Washington, DC.

Lake Minnetonka Sun. 1977, 20 July.

Lake Minnetonka Tourist. 1876, 26 June.

Marken, M.W., A. Ollendorf, P. Nunnally, and S. Anfinson. 1997. *Beneath Minnesota Waters: Minnesota's Submerged Cultural Resources Preservation Plan*. Summit Envirosolutions, Inc. and Braun Intertec, St. Paul. Report prepared for the State Historic Preservation Office, Minnesota Historical Society: St. Paul, MN.

Maverick. 1977, 20 July.

Minneapolis Journal. 1906, 5 August.

Minneapolis Times. 1896, 13 November.

Minneapolis Tribune. 1899, September 10.

Minnetonka Herald. 1957a, March 6; 1957b, 28 March; 1957c, 11 April; 1959, 5 March; 1960a, 25 February; 1960b, 17 March; 1960c, 14 April; 1961, 16 April; 1963a, 7 March; 1963b, 4 April; 1964, 5 March; 1965, 22 April; 1966, 24 March; 1967, 6 April.

Minnetonka Record. 1925, 25 December.

Minnetonka Sun.1968, 28 March.

McGinnis, Scott. 2010. *A Directory of Old Boats*. Scott D. McGinnis: Chaska, MN.

Moore Boat Works. 1908. *Moore Quality Boats*. Moore Boat Works: Wayzata, MN.

_____. 1912. *Moore Quality Boats*. Moore Boat Works: Wayzata, MN.

Outdoors, Inc. 1960. *Blue Book Boat Trade-In Guide: 1954-1959*. ABOS Publishing: Columbus, MO.

_____. 1963. *Blue Book Boat Trade-In Guide: 1960-1962*. ABOS Publishing: Columbus, MO.

Owens Yacht Company. 1958. *Owens 16 Landau-Hardtop*. NP: Baltimore, MD.

_____. 1960. *Owens: How's this for your new "second car"?* NP: Baltimore, MD.

Rybczynski, Witold. 2000. *One Good Turn: A Natural History of the Screwdriver and the Screw*. Simon & Schuster: New York, NY.

The St. Paul Globe. 1879, 1 October.

Saltus, Jr., Allen, and Leslie C. Stewart-Abernathy. 2002. The Model Barge and Other Vessels in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 102-129.

Stewart-Abernathy, Leslie C. 2002. Appendix A. Catalog of Major Wreck Pieces at 3CT243 in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 172-174.

Stewart-Abernathy, Leslie C., and Allen Saltus, Jr. 2002. Why These Wrecks, Here in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 130-156.

Wayzata North Shore Minnetonka Sun. 1968, 17 September.